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RECOVERIES FROM LEPROSY

An Analysis of the Records of 65 Cases¹

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From time immemorial leprosy has been considered an incurable disease, contributing almost invariably to a fatal termination. Until modern and quite recent times the Biblical injunction, "Cleanse the leper," has been accepted by many as referring to the spiritual rather than the physical cleansing of the leper. Half a century ago, the curing of a leper was so rare an occasion that a report of such evoked considerable discussion.

The discovery of the causative agent of leprosy by Armauer Hansen in 1871 and, later, improvement in the methods of detecting the organism have assisted leprologists in selecting, with a greater degree of accuracy, criteria by which cures might be determined.

It is recognized that cure, in so far as restoration of anatomical and physiological function is concerned, is impossible when mutilation has occurred in leprosy. It is obvious that the loss of members from spontaneous absorption of bone and other tissues (fig. 1), contraction of muscles and complete loss of sensation from destruction of motor and sensory nerves (fig. 2), extensive cicatrices from healed ulcers, blindness from opacities or destruction of the cornea (fig. 3) can not be cured; yet, in the last decade, considerable numbers of patients have been released from leprosaria following the arrest of the progress of leprosy and the disappearance of the bacilli, and most of the objective and subjective symptoms.

In the last 10 years, 65 patients have been released from the National Leper Home, at Carville, La. (Fig. 5.) The records of these cases present information of some interest and are submitted in abbreviated form.

¹ Presented at the meeting of the American Association of Tropical Medicine, held in Miami, Fla., Nov. 20-22, 1930.

Editorial note: Between the time of the presentation of this paper and Jan. 23, 1930, 8 additional lepers were paroled.

Abstracts of Clinical Records

CASE 1-LLH-277

Condition on admission: White female, age 40, duration of leprosy two and one-half years. Nodular type, macule on nose and one on leg.

Progress in hospital: Gradual disappearance of symptoms over a period of four years.

Treatments: Chaulmoogra oil by mouth, average dose 50 gtt. t. i. d.

Sequelæ: No evidence of previous lesions.

Outcome: No recurrence after nine years.

CASE 2-LLH-261

Condition on admission: White female, age 45, duration eight years. Nodular type, patches on nose and legs.

Progress in hospital: Gradual disappearance of symptoms over a period of five years.

Treatments: Chaulmoogra oil by mouth, average dose 50 gtt. t. i. d.

Sequelæ: No evidence of former lesions.

Outcome: No recurrence after nine years.

CASE 3-LLH-243

Condition on admission: White female, age 37, duration of leprosy one and one-half years. Nodular type, active; discolored hands, nodular ear lobes, diffuse infiltration of entire face.

Progress in hospital: Gradual disappearance of symptoms over a period of six years.

Treatments: Chaulmoogra oil by mouth in doses averaging 60 gtt. t. i. d. and strychnine one-sixtieth gr. t. i. d.

Sequelæ: Numerous scars and pigmented spots at sites of former leprosy lesions.

Outcome: No recurrence after nine years.

CASE 4-65

Condition on admission: White female, age 30, leprosy of seven years' duration. Nodular type; general health good; brown spot on forehead, rash on both legs.

Progress in hospital: Improvement began soon after admittance, consistently continued.

Treatments: Chaulmoogra oil by mouth ranging in dose from 5 to 10 gtt. daily for three and one-half years.

Sequelæ: No evidence of lesions when discharged.

Outcome: No recurrence during succeeding eight years.

CASE 5-76

Condition on admission: White male, age 16, duration of leprosy 1 year. Mixed type; numerous nodules and anesthetic macules.

Progress in hospital: Progressively worse for four years, then became inactive; gradual improvement continued until paroled. Hospitalized 16 years.

Treatments: For several years no treatment, three years averaged 300 gtt. chaulmoogra oil by mouth daily; four years averaged 600 daily, a total of approximately 80 liters.

Sequelæ: Contractions of fingers and few scars from leprosy infiltrations.

Outcome: Eight years after parole, developed a trophic ulcer on sole of foot; healing promptly accomplished; no evidence of activation of leprosy.

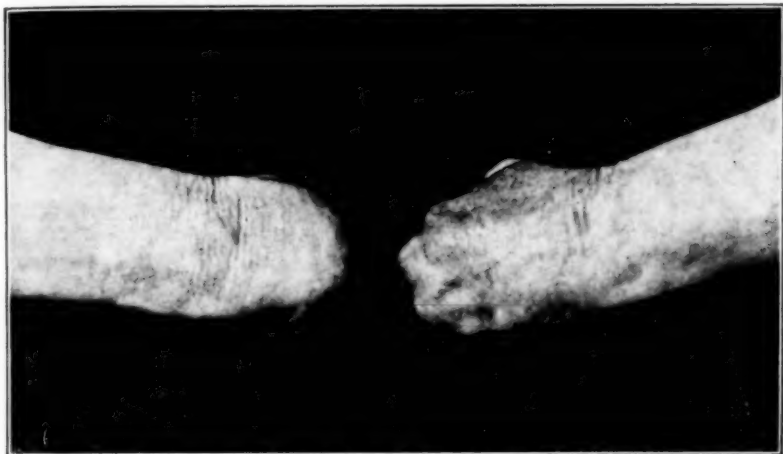


FIGURE 1.—HANDS OF LEPER PAROLED AS RECOVERED, SHOWING LOSS OF ALL PHALANGES AND SOME DESTRUCTION OF METACARPALS (CASE 33-118)



FIGURE 2.—INCOMPLETE "CLAW HAND" OF PAROLED PATIENT, SHOWING ATROPHY OF INTEROSSEI MUSCLES OF LEFT HAND WITH COMPLETE LOSS OF SENSATION (CASE 26-54)



FIGURE 3.—PAROLED PATIENT. TOTAL BLINDNESS, DOUBLE FACIAL PARALYSIS, AND SOME CICATRICAL TISSUE (CASE 31-160)



FIGURE 4.—PAROLED PATIENT. NO SEQUELAE OF LEPROSY (CASE 4-65)

CASE 6-81

Condition on admission: White male, age 65, duration more than five years. Mixed type, nodular symptoms predominating. Eight large circinate macules, the size of palm of hand, on chest, abdomen, back, and arms. Also one on right leg in popliteal space. Between large macular areas there are smaller macules, varying in size from a dime to a dollar. All lesions light brownish-red in color, with atrophic centers. Commencing contractions of all fingers both hands, one small ulcer on index finger.

Progress in hospital: Slow, consistent improvement during two years' stay in hospital.

Treatment: Ethyl esters of chaulmoogra oil, hypodermically, irregularly taken.

Sequelæ: Scars from old burns and a few depigmented spots.

Outcome: Died one year after discharge.

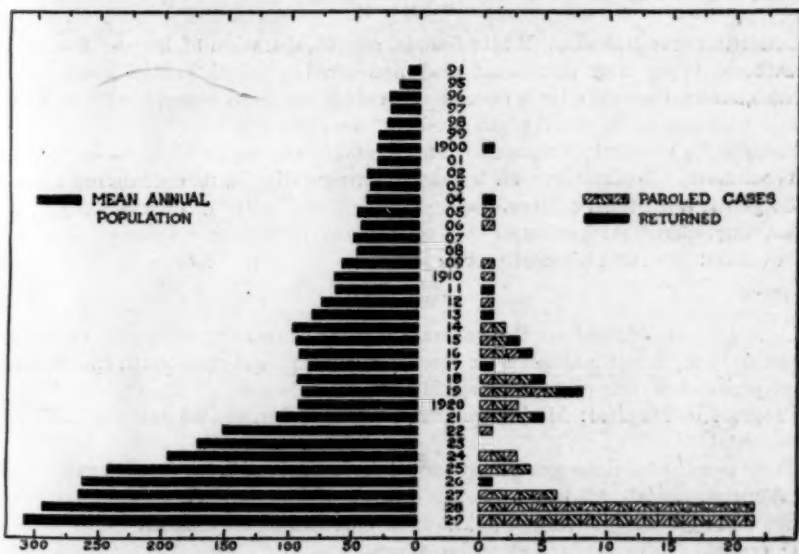


FIGURE 5.—Mean annual population of the leprosarium since its establishment in 1894 as the Louisiana Leper Home and the numerical distribution of paroled and relapsed patients

CASE 7-88

Condition on admission: White female, age 64, duration of leprosy 8 years. Nodular type. Reddish brown pigmentation slightly raised covering face and forehead, spots of same character on arms.

Progress in hospital: Gradual improvement during six years in hospital.

Treatment: Chaulmoogra oil, 50 gtt. t. i. d. by mouth, irregularly.

Sequelæ: Face wrinkled from recession of leprous tumefaction, no other lesions.

Outcome: No recurrence in eight years.

CASE 8-109

Condition on admission: White male, age 31, duration of leprosy 15 years; antileprosy treatment already taken for eight years; no evidences of active leprosy.

Progress in hospital: Condition stationary during nine months in hospital.

Treatment: Ethyl esters of chaulmoogra oil total 144 cubic centimeters; small doses of chaulmoogra oil by mouth.

Sequelæ: Slight contraction of fingers.

Outcome: Returned after three years with symptoms of active leprosy; present condition approaching quiescence.

CASE 9-6

Condition on admission: White female, age 20, duration of leprosy one year. Nodular type. Small white macule on right shoulder and left arm. Infiltrated patch on face, several small nodules scattered over body. No anesthesia.

Progress in hospital: Frequent attacks of leprosy fever, gradual subsidence followed by consistent improvement, three and one-half years in hospital.

Treatment: Chaulmoogra oil orally, intermittently in doses of 10 to 30 gtt. t. i. d. for two years with approximate total of 2 liters.

Sequelæ: None.

Outcome: No recurrence for seven years; interstitial keratitis developing, possibly leprous.

CASE 10-90

Condition on admission: White female, age 46, duration of leprosy five years. Anesthetic type; well developed and nourished, general health good; raised reddish infiltration over both cheeks and extending from one side of face to the other, involving nose; small pigmented spot on right leg.

Progress in hospital: Uneventful improvement during eight years in hospital.

Treatment: Chaulmoogra oil by mouth irregularly, in doses ranging from 10 to 30 gtt. t. i. d.; total 8 liters.

Sequelæ: Slight thickening of skin of face at site of former lesions.

Outcome: No recurrence after five years.

CASE 11-200

Condition on admission: Brown male, age 22, duration of leprosy two years. Nodular type; small nodules over forehead, cheeks, and chin; both cheeks somewhat pigmented, few pigmented spots over chest.

Progress in hospital: Made rapid improvement during two and one-half years in hospital.

Treatment: Chaulmoogra oil by mouth irregularly of from 5 to 25 gtt. t. i. d.; total approximately 1½ liters.

Sequelæ: Slight thickening of skin of face at site of old lesions.

Outcome: No recurrence after five years.

CASE 12-213

Condition on admission: White female, age 44, duration of leprosy four years. Mixed type; well developed and general physical condition good. Large reddened nodular area above left elbow, spot is anesthetic to heat and cold. Large area on left leg below knee is anesthetic to pain. Small reddish-brown spot on left thigh.

Progress in hospital: Very rapid progress toward recovery during two years in hospital. Two minor surgical operations performed.

Treatment: Ethyl esters of chaulmoogra oil in doses of from 1 to 5 cubic centimeters for 22 weeks, a total of 74 cubic centimeters; weekly injections 2 cubic centimeters for 35 weeks, a total of 70 cubic centimeters. Also chaulmoogra oil by mouth, 40 gtt. t. i. d., total 12 liters. Also took intravenous injections of mercurochrome 2 per cent over a period of 10 weeks, a total of 216 cubic centimeters.

Sequelæ: Considerable improvement in sensation, spots almost disappeared.

Outcome: No recurrence after five years.

CASE 13-63

Condition on admission: White female, age 63, well-developed and nourished, good general health, duration of leprosy over 10 years, anesthetic type. Diffuse brown pigment over lower half both legs. Depigmented patches on back and shoulders. Anesthetic to pain, heat, and cold below elbows, except finger tips, and below lower half both legs.

Progress in hospital: Slow improvement during six years in hospital.

Treatment: Small doses chaulmoogra oil by mouth irregularly since admittance, a total of over four liters.

Sequelæ: Anesthesia improved, but present in some locations.

Outcome: No recurrence after four years.

CASE 14-12

Condition on admission: White female, age 32, duration over 10 years. Anesthetic type. Face and hands red and swollen, and patient complained of cramps in fingers. Anesthetic to touch over ulnar aspect both forearms and below mid thighs; to pain, heat and cold over entire extremities. Loss of hair of eyebrows and forearms. Contraction all toes of left foot.

Progress in hospital: Slow improvement during 11 years in hospital.

Treatment: Small doses chaulmoogra oil by mouth regularly, totaling more than five liters. Ultraviolet ray to sinus of left foot irregularly; also hydrotherapy.

Sequelæ: Anesthesia unchanged, general condition excellent.

Outcome: No recurrence for four years.

CASE 15-148

Condition on admission: White female, age 3, duration of leprosy over one year. Anesthetic type. Two small pale patches on buttocks only signs of leprosy presented.

Progress in hospital: Rapid progress during three and one-half years in hospital with complete disappearance of lesions.

Treatment: Chaulmoogra oil by mouth irregularly; during entire stay in hospital took 150 cubic centimeters.

Sequelæ: None visible.

Outcome: No recurrence after four years.

CASE 16-190

Condition on admission: White male, age 39, well developed and nourished and general health good; duration of leprosy more than 10 years. Mixed type; diffuse thickening posterior part humeral region around both wrists. Slightly pigmented patches over areas of entire body, apparently old leprotic patches disappearing. Sensation in both hands dull and absent in little finger of left hand. Heat and cold can not be distinguished in feet. Ulnar and popliteal nerves enlarged. Little finger left hand flexed, right toe drop.

Progress in hospital: Slow during three and one-half years in hospital. Terminal phalanx second toe of left foot removed.

Treatment: Chaulmoogra oil by mouth, 10 to 75 gtt. daily, a total of about 12 liters. Ethyl esters of chaulmoogra oil for six months, 2 cubic centimeters weekly, approximately 50 cubic centimeters.

Sequelæ: Deformities unchanged, sensation slightly improved.

Outcome: No recurrence, reported dead.

CASE 17-86

Condition on admission: White female, age 34, duration of leprosy seven years. Anesthetic type. Brown spots scattered over both arms and legs and

one of smaller size on left cheek. Anesthetic to pain, heat, and cold over ulnar surface of left forearm and all fingers of left hand and outer surface left leg. Sensation diminished over all spots.

Progress in hospital: Numerous intermittent attacks of neuritis in arms; gradual cessation of pain and some return of normal sensation during seven years' stay in hospital.

Treatment: Chaulmoogra oil by mouth regularly since admittance, approximate total 7 liters; also physiotherapy and hydrotherapy for neuritis.

Sequelæ: None visible.

Outcome: Recurrence after three years, readmission for further treatment as active nodular type.

CASE 18-291

Condition on admission: White female, age 58, well nourished and excellent physical condition, duration of leprosy three years. Mixed type. Small red patch on left knee and large patch on lower half of left leg. Anesthetic to touch over central portion of the patch on left leg; to pain, heat and cold on ulnar aspect right forearm, second, third, and fourth fingers and index finger left hand.

Progress in hospital: Slow improvement during three years in hospital.

Treatment: Chaulmoogra oil by mouth, approximate total 11 liters.

Sequelæ: Diminished sensation in spots originally affected.

Outcome: No recurrence after two years.

CASE 19-24

Condition on admission: White male, age 30, well developed and in good physical condition; duration of leprosy 1 year. Mixed type, anesthetic predominating. Small patch posterior to mid axillary line and lower border of ribs depigmented in center surrounded by circle of pigmented skin. Sensation to touch dulled in little and ring finger of both hands, also dulled sensation in both feet. Old evidence of leprotic macule on outer aspect of left arm. Both ulnar nerves enlarged.

Progress in hospital: Herniotomy in July, 1924. Periodically suffered intensely with neuritis in arms and legs up until about one and one-half years before discharge. Slow disappearance of symptoms during eight years' stay in hospital.

Treatment: Chaulmoogra oil by mouth from admittance, approximate total 15 liters. Palliative treatment with physiotherapy given for neuritis.

Sequelæ: Some anesthesia remains.

Outcome: No recurrence after two years.

CASE 20-7

Condition on admission: White female, age 30, duration of leprosy 1 year. Early anesthetic type. Brown patches on forehead and right leg. Anesthetic to pain on anterior surface left ankle and foot, also second and third toes. Sensation to heat and cold diminished on same area. Suffered periodically with neuritis and occasionally tubercles.

Progress in hospital: Marked improvement from tubercles and neuritis, slow improvement during 7 years in hospital.

Treatment: Fowler's solution irregularly, routinely in 1 gt. t. i. d. increasing 1 gt. each day until 15 gtt. were taken. Chaulmoogra oil by mouth, approximate total, 10 liters. Hydrotherapy and electrotherapy irregularly.

Sequelæ: Slight anesthesia remains.

Outcome: No recurrence after two years.

CASE 21-243

Condition on admission: White male, age 57, well developed and in excellent physical condition. Duration of leprosy one year. Both ulnar nerves enlarged. Thermal sensation not appreciated as acutely as normal over outer border of right wrist. Pigmentation over chest and more marked over left shoulder. Light brownish pigmentation over external surfaces of arms. Deeper pigmentation over both hands.

Progress in hospital: Became leonine in appearance. Had one attack of cerebral hemorrhage. Leprosy gradually subsided during seven years' stay in hospital.

Treatment: Chaulmoogra oil by mouth, total approximately 36 liters.

Sequelæ: No visible signs.

Outcome: Died soon after discharge, cause unknown.

CASE 22-328

Condition on admission: Male, Filipino, age 24, well developed and nourished, good general health. Mixed type, anesthetic predominating, duration of leprosy one year. Small patch on inner surface right leg and left forearm. Anesthesia over ulnar surface of left forearm and fourth finger. Ulnar nerves thickened, left ulnar nodular. Ear lobes slightly thickened.

Progress in hospital: Rapid improvement during three years' stay in hospital.

Treatment: Chaulmoogra oil by mouth regularly, approximate total 3 liters.

Physiotherapy, exercise and massage.

Sequelæ: None visible.

Outcome: No recurrence for two years.

CASE 23-73

Condition on admission: White female, age 24, duration of leprosy eight years. Mixed type, nodular predominating. On admission weighed 100 pounds, was emaciated, undernourished, well advanced leper. All fingers on right hand contracted and ring and little finger left hand. Anesthesia both hands and forearms and lower half both legs. Small scattered areas of pigmented and depigmented skin over most of body. Many scars of old ulcers on legs and arms. Scattered areas or raised, reddened areas present representing active processes. Complete loss of eyebrows.

Progress in hospital: General improvement during last five years in hospital, gained in weight until she weighed 180 on discharge. At times, suffered with neuritis and tubercles. Total time in hospital 10½ years.

Treatment: Chaulmoogra oil by mouth since admittance, approximate total 5 liters. Massage, hydrotherapy, and exercises to hands and feet. Ethyl esters of chaulmoogra oil intramuscularly once weekly for three years, total about 150 cubic centimeters.

Sequelæ: Many scars from burns, hands still deformed, anesthesia unchanged.

Outcome: No recurrence after two years.

CASE 24-92

Condition on admission: White female, age 56, duration of leprosy 10 years. Mixed type. One nodule on right forearm. Anesthesia to pain throughout radial distribution of forearms and hands. Anesthesia of both feet and legs. Thermal sensation hands absent and diminished in both feet.

Progress in hospital: Suffered greatly at times with acute indigestion and gall stone colic. Slow improvement of leprosy during 16 years in hospital.

Treatment: Chaulmoogra oil in small doses by mouth since admission. Approximate total 4 liters. During 1921, took ethyl esters of chaulmoogra oil for 7

months in doses of one-half to 5 cubic centimeters once weekly but discontinued on account of severe pain and reactions. Total amount approximately 86 cubic centimeters; also physiotherapy irregularly.

Sequelæ: No evidence of former lesions, anesthesia unchanged.

Outcome: Died; no evidence of active leprosy found at autopsy.

CASE 25-219

Condition on admission: White female, age 32, duration of leprosy 12 years. Anesthetic type. A few small patches about face, one on each buttock, one on left ankle, also right ankle and leg. Dark spots covering most of thumb and forefinger of right hand and small one on knuckle of second finger left hand. Loss sensation in thumb and index finger right hand and in patch on left hand. Diminished sensation dorsal portion both feet, also to heat and cold. Ulnar nerve thickened.

Progress in hospital: Gradual cessation of leprosy activity.

Treatment: Chaulmoogra oil by mouth, approximate total 10 liters. Hydrotherapy and physiotherapy irregularly during entire stay. Strychnine one-sixtieth grain t. i. d. intermittently; also Fowler's solution.

Sequelæ: No evidence of former lesions.

Outcome: No recurrence in one year.

CASE 26-54

Condition on admission: Negro male, age 29, well nourished and in good physical condition. Anesthetic type, duration of leprosy 10 years. Light colored depigmented patches on thighs and right arm. Anesthetic to pain, heat and cold below lower half of forearm on ulnar side, and wrist on radial side of both forearms and lower half both legs. Muscular atrophy left hand and thickening ulnar nerves; contraction fourth and fifth toes right foot.

Progress in hospital: Slow improvement during 11 years in hospital.

Treatment: No special treatment.

Sequelæ: Same as on admission.

Outcome: No recurrence for one year.

CASE 27-311

Condition on admission: Negro male, age 23; good general health; well developed and nourished. Duration of leprosy one year. Anesthetic type. Pigmented areas on both elbows, right upper arm and both forearms. Brown patches on both cheeks, left thigh, left leg, right leg and small spot in center of back. All pigmented areas are anesthetic, also right index finger and ulnar aspect of left forearm. Muscular atrophy marked in left hand. Both ulnar nerves thickened. Fourth and fifth fingers left hand contracted.

Progress in hospital: Uneventful, favorable progress during four years' stay in hospital.

Treatment: Chaulmoogra oil by mouth, approximate total 13 liters. Ethyl esters of chaulmoogra oil once weekly for two years, total 106 cubic centimeters. Hydrotherapy and electrotherapy.

Sequelæ: Atrophy of interosseous muscles and slight contraction two fingers left hand; otherwise no evidences of leprosy.

Outcome: No recurrence for one year.

CASE 28-17

Condition on admission: White female, age 57, duration of leprosy one year. Nodular type, small nodules scattered over face; no disturbance of sensation or any other signs of leprosy.

Progress in hospital: Slow improvement during 10 years in hospital.

Treatment: Took chaulmoogra oil regularly since admittance, total approximately 25 liters.

Sequelæ: None visible.

Outcome: No recurrence for one year.

CASE 29-32

Condition on admission: White male, age 28, well developed and nourished and in good general health. Mixed type, duration of leprosy two years; lepromata in right ear lobe. Anesthetic to pain, heat, and cold below elbow on ulnar side extending toward radial side to the hand, gradually extending to thumb of both sides and dorsal and lateral surface of both feet. Slight thickening of both ulnar nerves. Right ear lobe slightly pendulous.

Progress in hospital: Slow improvement during eight years in hospital.

Treatment: Chaulmoogra oil orally, irregularly, approximate total 19 liters.

Sequelæ: Anesthesia unchanged.

Outcome: No recurrence for one year.

CASE 30-108

Condition on admission: Filipino male, age 26, well developed and nourished; good general health. Duration of leprosy 4 years. Edema under both eyes. Anesthetic macule over shoulder; on crest of shoulder a smaller patch, also one on left arm. Right ulnar nerve palpable.

Progress in hospital: In 1923, excision of a pterygium. No acute illness excepting mental disintegration evidenced after admittance until shortly before discharge. At different times he had to be confined and restrained. Slow improvement in leprosy during eight years in hospital.

Treatment: Chaulmoogra oil by mouth irregularly, approximate total 26 liters.

Sequelæ: No evidence of leprosy.

Outcome: No recurrence after one year.

CASE 31-160

Condition on admission: Mexican male, age 44; duration of leprosy 32 years. Mixed type, anesthetic predominating. Large pendulous ear lobes. Double wrist and toe drop. Double main-en-griffe, more marked left side. Double ectropion both eyes.

Progress in hospital: Gradual cessation of leprosy activity.

Treatment: Chaulmoogra oil by mouth for one year, total of 1,500 cubic centimeters. Cod liver oil one-fourth to one-half ounce daily for four years. Galvanic current to hands for five months three times weekly.

Sequelæ: Deformities persist, slight improvement in sensation.

Outcome: No recurrence in one year.

CASE 32-87

Condition on admission: Negro male, age 43, duration of leprosy 10 years. Anesthetic type; muscular atrophy of left forearm and hand, main-en-griffe left hand. Ulnar nerves palpable. Many pigmented macules of varying sizes over face, trunk, and arms. Sensation to pain lost in lower two-thirds forearms and lower parts of legs, including feet. Loss of sensation to heat and cold over same areas. Trophic ulcer on plantar surface of foot.

Progress in hospital: Rectal fistula drained under general anesthesia. Lisfranc's amputation right foot. Improved very slowly during 15 years' stay in hospital.

Treatment: Chaulmoogra oil by mouth irregularly, approximately 4 liters. Strychnine sulphate grain one-sixtieth t. i. d. for two years. Galvanic current

to arms for five months. Mercurochrome, intravenously, total 167 cubic centimeters.

Sequelæ: Anesthesia and deformities unchanged.

Outcome: No recurrence for one year.

CASE 33-118

Condition on admission: White female, age 19, duration of leprosy two years, type anesthetic; few macules scattered over body, some anesthesia.

Progress in hospital: General health remained excellent, progressive absorption of small bones of hands and feet. Hospitalized 24 years.

Treatment: Chaulmoogra oil by mouth 30 drops and strychnine one-sixtieth grain t. i. d. irregularly, total chaulmoogra 6 liters.

Sequelæ: Complete absorption of small bones of hands and feet. Anesthesia unchanged.

Outcome: No recurrence for one year.

CASE 34-34

Condition on admission: White female, age 13, duration four years. Anesthetic type. Inflamed eye and severe nerve pains in arms and legs, followed by red spots which occupied entire body.

Progress in hospital: About 10 years after admission, fingers began to contract and gradually bone absorption took place. About the same time ulcers developed on both feet, due to necrotic bone; facial paralysis began in 1908 and progressed slowly. Has had two operations for ptosis of eyelid, and numerous times curettement of bone, also Chopart's amputation of one foot. About 1921, for first time began to take antileprosy treatment. Total time in hospital 33 years.

Treatment: Unable to take chaulmoogra oil for any length of time, due to gastric disturbances. Ethyl esters of chaulmoogra oil in doses of 1 to 5 cubic centimeters irregularly, approximately 42 cubic centimeters. Also strychnine grain one-sixtieth b. i. d. irregularly. Chaulmoogra by mouth, enteric capsules; approximate total in three years, 6 liters. Chaulmoogra-benzocaine intramuscular injections semiweekly, regularly, beginning with 1 cubic centimeter and increasing to 8 cubic centimeters twice weekly, total 720 cubic centimeters intramuscularly; also hydrotherapy, electrotherapy, and massage.

Sequelæ: Deformities of hands, feet; facial distortion and anesthesia remain.

Outcome: No recurrence for one year.

CASE 35-364

Condition on admission: White male, age 50, good general health, well developed and nourished. Duration of leprosy, 11 years. Mixed type; ear lobes slightly thickened. Many circular patches over body, forearms, thighs, and legs. Anesthetic to pain, heat, and cold over patches. Thickening of ulnar nerves; loss of perspiration over patches and on external surface of left foot.

Progress in hospital: Made remarkable improvement and only on one or two occasions when first admitted suffered with neuritis. Chronic bronchitis, but no evidence of tuberculosis. Lesions faded rapidly, perceptible improvement in sensation. Improvement steady during 3½ years in hospital.

Treatment: Benzocaine-chaulmoogra oil intramuscularly semiweekly, total 560 cubic centimeters. Ethyl esters of chaulmoogra oil intramuscularly, total 202 cubic centimeters. Hydrotherapy, contrast baths to hands and feet regularly for two years; ultra-violet to chest for bronchitis for three months.

Sequelæ: Improvement in sensation in old macules. No evidence of active leprosy.

Outcome: No recurrence for one year.

CASE 36-429

Condition on admission: White female, age 65, well developed, nourished, robust, in excellent general health; duration of leprosy eight years. Anesthetic type. Two circular patches on left leg, two on right leg, and one on right hip. Anesthesia both hands and right forearm midway to elbow. Perforating ulcer plantar surface right foot. Ulnar nerves palpable. Contraction index finger left hand. Atrophy and absorption of distal phalanges of ring and little fingers on right hand. Absorption of proximal phalanges of big and adjoining toe with contraction of toes.

Progress in hospital: Improvement began soon after admittance, complete disappearance of lesions and healing of ulcer on foot. Time in hospital, three years.

Treatment: Chaulmoogra oil with benzocaine, intramuscular injections semi-weekly, regularly for a total of 18 months, doses ranging from 2 cubic centimeters to 8 cubic centimeters, total 830 cubic centimeters. Quartz mercury and ultra-violet lights to feet for nine months.

Sequelæ: Slight evidence remains of old trophic ulcer of foot; marked improvement in sensation and contracted fingers.

Outcome: No recurrence for two years.

CASE 37-245

Condition on admission: White female, age 53, well developed, nourished and in good health. Duration of leprosy one year. Mixed type, anesthetic predominating. Macules over chest and back, some are present over abdomen and thighs.

Progress in hospital: Gradual disappearance of macules. Stay in hospital, five years.

Treatment: Chaulmoogra oil by mouth consistently, approximate total 12 liters.

Sequelæ: No evidence of lesions.

Outcome: No recurrence in two years.

CASE 38-253

Condition on admission: Negro male, age 40, well developed and nourished, in excellent health. Duration of leprosy over 10 years. Nodular type; light colored patches over entire body; epithelium exfoliating over most patches. No anesthesia to pain. Heat and cold perception diminished over lower dorsal surface, forearms and lower third both legs. Lower third left leg and ankle swollen and show scars and dark pigmentation. Ulnar nerves palpable.

Progress in hospital: Rapid improvement during 5 years in hospital.

Treatment: Ethyl esters of chaulmoogra oil from admission, two cubic centimeters weekly, approximate total 450 cubic centimeters. Chaulmoogra by mouth regularly, approximate total 20 liters. Radiant light to hands, 24 months; baths and exercise to hands, 40 months contrast.

Sequelæ: No evidence of former lesions.

Outcome: No recurrence for one year.

CASE 39-264

Condition on admission: White male, age 67, well developed, good general health. Duration of leprosy three years. Mixed type; face, forehead and back very much thickened and red; large red, elevated and thickened patches with well-defined borders located as follows: One on left arm; 8 on left forearm and wrist; 2 on right arm; 1 on right elbow. Large diffuse patches over right forearm; several patches on left thigh and several large diffuse areas on legs and feet. Anesthetic to pain, heat, and cold over patches. Loss of hair over chest.

Progress in hospital: Operation for hernia, otherwise uneventful improvement during four years' stay in hospital.

Treatment: Mercurochrome intravenously weekly, total 2,872 cubic centimeters. Chaulmoogra oil by mouth in small doses very irregularly.

Sequelæ: Scars from recession of leprosy processes; some anesthesia remains.

Outcome: No recurrence for two years.

CASE 40-125

Condition on admission: White female, age 40, duration of leprosy six years. Mixed type; diffuse thickening of face and forearms and small white patches over back. Anesthetic to touch below elbow on ulnar side and lower half radial side both forearms and below lower third of thighs on outer side and below both knees on inner side. Thickening of ulnar and sup. orbital nerves. Loss of eyebrows and lashes. Scars of old ulcers on legs. Both ears pendulous, end of nose receded, nostrils almost closed.

Progress in hospital: Cauterization leproma right eye. Leprosy slowly became inactive during seven years' stay in hospital.

Treatment: Salvarsan 0.3, four doses; chaulmoogra oil with benzocaine intramuscularly, semiweekly, total 240 cubic centimeters, chaulmoogra oil by mouth since admission, approximate total two liters.

Sequelæ: Considerable scarring on face; some anesthesia remains.

Outcome: No recurrence after one year.

CASE 41-293

Condition on admission: White male, age 43, good physical condition; duration of leprosy one year. Mixed type; brown patches over both legs from waist down and over both hands, both elbows and several on both arms. Anesthetic to pain, heat, and cold over the surface covered by patches.

Progress in hospital: Made marked improvement from admittance. Shortly after admission had a slight febrile attack and a few scattered tubercles. Improvement uneventful thereafter. Stay in hospital, four and one-half years.

Treatment: Ethyl esters of chaulmoogra oil once weekly for six months, a total of 42 cubic centimeters. Chaulmoogra oil by mouth regularly, approximate total 13 liters. Contrast baths daily to hands and feet, 42 months.

Sequelæ: No evidence of former lesions.

Outcome: No recurrence for one year.

CASE 42-385

Condition on admission: White male, age 40, general physical condition excellent. Duration of leprosy 8 years. Anesthetic type; small red macule on left buttock. Anesthetic to touch, pain, heat, and cold, both hands to elbows, right foot and leg to middle of thigh posteriorly, left buttock and an area on back above girdle; muscular atrophy both hands, left leg and foot. Ulnar nerves thickened. Contraction second, third, and fourth fingers both hands.

Progress in hospital: Improvement from admittance, continued during three and one-half years in hospital.

Treatment: Ethyl esters of chaulmoogra oil intramuscularly, total 57 cubic centimeters. Tryparsamide intravenously, 3 grams weekly, irregularly for 12 months, a total of 27 injections and 78 grams. Chaulmoogra oil benzocaine intramuscularly, semiweekly for 15 months, total of 600 cubic centimeters, chaulmoogra oil by mouth for 19 months, total of 1,750 cubic centimeters, contrast baths and massage with exercise to hands daily for 5 months.

Sequelæ: Deformities of hands, atrophy and contracted fingers remain; anesthesia is improved.

Outcome: No recurrence for one year.

CASE 43-521

Condition on admission: White male, age 45. Admitted as a stretcher case; general physical condition much below par. Very feeble and emaciated. Duration of leprosy 15 years. Mixed type, nodular predominating. Pronounced anesthesia in areas supplied by terminations of ulnar nerves. Both ear lobes pendulous, containing many tubercles, also many tubercles over face, hands, outer surface arms, also legs and feet. Ulnar nerves enlarged and thickened; all fingers slightly contracted. Subject to periodic attacks of leprosy fever with outcropping of tubercles associated with neuritis.

Progress in hospital: At times, mentally unbalanced and on several occasions had to be restrained. Symptoms of active leprosy gradually subsided. Time in hospital, 10 years.

Treatment: From admittance, took small doses of chaulmoogra oil by mouth, irregularly, supplemented by strychnine one-sixtieth grain t. i. d., irregularly. For two years took chaulmoogra oil mixed with food, in this manner took 50 ounces. Also took 12 intramuscular injections of chaulmoogra oil with benzocaine 5 cubic centimeters semiweekly, a total of 60 cubic centimeters.

Sequelæ: Diminished sensation in areas previously affected. Double incomplete claw hand.

Outcome: No recurrence for one year.

CASE 44-119

Condition on admission: White female, age 66, well developed and well nourished. Duration of leprosy one year, nodular type. Pigmented raised plaques on forearms.

Progress in hospital: Gradual disappearance of lesions during seven and one-half years' stay in hospital.

Treatment: Ethyl esters of chaulmoogra one year, total of 185 cubic centimeters; chaulmoogra oil by mouth, continuously, total about 18 liters; strychnine one sixtieth grain irregularly; physiotherapy consistently for two years.

Sequelæ: No evidence of leprosy.

Outcome: No recurrence in one year.

CASE 45-99

Condition on admission: White female, age 42; duration of leprosy 17 years. Anesthetic type, anesthetic to pain, heat, and cold below elbow on ulnar side and forearm on radial side both arms, below upper third both legs. Perforating ulcer plantar surface left foot. Muscular atrophy of hands. Distal phalanges of all fingers have been absorbed; distal half of right foot and third toe left foot have been amputated.

Progress in hospital: Gradual cessation of active symptoms; time in hospital, 34 years.

Treatment: Very little treatment taken in later years. In early hospitalization patient took chaulmoogra oil by mouth in small doses.

Sequelæ: Old trophic ulcer on right foot, muscular atrophy in hands; anesthesia unchanged.

Outcome: No recurrence in two years.

CASE 46-474

Condition on admission: White female, age 17 years; duration of leprosy four years. Anesthetic type; small macules scattered over various parts of body; anesthesia both hands and forearms and lower legs below knees to toes, also over numerous small areas over entire body. Contraction all fingers both hands. Perforating ulcer left foot.

Progress in hospital: Gradual cessation of active symptoms during 14 years in hospital.

Treatments: Intolerant of chaulmoogra oil by mouth and not able to take even small doses over any period of time. Total in three years, 169 cubic centimeters. In 1928 began taking chaulmoogra oil with benzocaine by mouth in 10 gtt. capsules, and in this manner took 100 cubic centimeters. Took 18 injections in 1928 of benzocaine-chaulmoogra oil intramuscularly, 5 cubic centimeters semiweekly, total 90 cubic centimeters. Strychnine, grain one-sixtieth t. i. d. for 18 months. Daily massage, hydrotherapy and exercise to hands for 14 months. Ultraviolet to ulcer foot, four months.

Sequelæ: Many old scars remain as evidence of anesthesia; contraction of fingers, both hands. No evidence of activity.

Outcome: No recurrence in one year.

CASE 47-326

Condition on admission: White male, age 22, duration of leprosy nine years. Mixed leprosy, nodular type predominating; lepromata in both ear lobes and over entire face, left arm, knee, and hip. Brown patches scattered over entire body. Anesthesia little finger right hand, outer surface left leg and both feet from ankles to toes. Both ulnar nerves enlarged. Loss of hair of eyebrows. Hands edematous, little finger left hand contracted.

Progress in hospital: Suffered at times with neuritis and tubercles; recovery gradual from admittance. Time in hospital, four years.

Treatment: Tryparsamide intravenously, in doses, weekly, varying 1 gram, 2 grams, and 3 grams for 17 doses for a total of 23 grams. Ethyl esters of chaulmoogra, weekly intramuscular doses 2 cubic centimeters for total of 110 cubic centimeters. Smallpox vaccine, two years; began with puncture vaccinations followed by intradermal injections of 0.05 cubic centimeter biweekly, increasing 0.05 cubic centimeter every second dose until 0.5 cubic centimeter was reached, which was maintained to date of discharge. Took cod-liver oil in large doses by mouth from time of admittance. Contrast baths to hands with massage during entire stay.

Sequelæ: No evidence of brown patches or lepromata. Slight thickening of skin and loss of hair of eyebrows remain. Original areas of anesthesia much improved.

Outcome: No recurrence in six months.

CASE 48-106

Condition on admission: White male, age 33; duration of leprosy four years. Mixed type, nodular predominating; small lepromata over forearm, arms, and back. Diffuse thickening on forehead over eyebrows. Patches with diffuse increased pigmentation over legs and arms. Anesthetic to pain, heat, and cold on left wrist and hand, except fingers, and below upper half right arm, below upper third on external surface, and lower third internal surface of both legs. Muscular atrophy of hands; ulnar nerves thickened. Loss of hair of eyebrows and lashes. Contraction of fingers right hand with shortening from absorption.

Progress in hospital: Steady, gradual improvement during eight years in hospital.

Treatment: Large amount of olive oil. Chaulmoogra oil by mouth in doses of 100 to 150 gtt. daily, total of 2,250 cubic centimeters. Mercurochrome intravenously, 7 injections, total 140 cubic centimeters.

Sequelæ: Loss of hair of eyebrows, with deformities of fingers. Anesthesia present as on admittance, but improved. Slight scarring, over forehead, of old nodules. No evidence of any other leprosy lesions on body.

Outcome: No recurrence for six months.

CASE 49-470

Condition on admission: Negro male, age 50, well developed and nourished, in excellent general health; duration of leprosy 10 years. Mixed type. Small, light-brown patch in center of back; sensation diminished in both hands, forearms, and feet; atrophy of interosseous muscles in both hands; both ulnar nerves thickened; contraction of all fingers, both hands; absorption first joint of right thumb.

Progress in hospital: Improvement progressive since admittance. Stay in hospital, one and one-half years.

Treatment: Ethyl esters of chaulmoogra oil intramuscularly into buttocks weekly, in 2 cubic centimeter doses, continuously until discharge. Massage and contrast baths to hands.

Sequelæ: Contraction of fingers as on admittance. Anesthesia slightly improved.

Outcome: No recurrence in six months.

CASE 50-103

Condition on admission: White male, age 39, well developed and nourished. Duration of leprosy 10 years. Anesthetic type. Red patches over forearms. Anesthetic to pain, heat, and cold over entire body. Ulcer on left leg and index finger of left hand. Muscular atrophy both hands. Thickening of ulnar nerves. Loss of hair of eyebrows, lashes, forearms, and legs. Contraction all fingers both hands, except thumbs and first fingers of right hand, some shortening. Scars of old ulcers on legs and knees. Scar tissue formation over face. Both ear lobes absent.

Progress in hospital: Improvement very slow but consistent during eight years in hospital.

Treatment: Five intravenous injections of salvarsan, of dosage 0.6; 10 injections of 0.3 salvarsan. Mercurochrome intravenously, total 214.6 cubic centimeters. Cod-liver oil consistently taken by mouth, in large doses, also Fowler's solution during febrile attacks. Chaulmoogra oil orally for 10 months, 45 gtt. daily; total, 587 cubic centimeters. Ethyl esters of chaulmoogra oil seven and one-half months; 1 to 2 cubic centimeters intramuscularly, once weekly, total of 45 cubic centimeters.

Sequelæ: No evidence of former lesions, but remnants of old scars over face and body, with deformities of hands remaining.

Outcome: No recurrence for six months.

CASE 51-272

Condition on admission: Negro male, age 32, well developed, nourished and in good general health. Duration of leprosy three years. Mixed type. Diffuse thickening of skin over margins of patches on face, neck, and over patch on back and right buttock. Light-colored patches on both arms, forearms, back, thigh, and ankle of left leg and a large patch on right buttock. Anesthesia to pain, heat and cold over all patches. Slight atrophy of interosseous muscles. Thickening both ulnar nerves.

Progress in hospital: Progressive improvement during four years' stay in hospital.

Treatment: Chaulmoogra oil orally for 16 months, averaged 30 gtt. daily for a total of 471 cubic centimeters. No other treatments.

Sequelæ: No evidence of any lesions. Anesthesia much improved.

Outcome: No recurrence for six months.

CASE 52-536

Condition on admission: Filipino male, age 31, well developed and nourished; duration of leprosy one year, anesthetic type; diffuse thickening forearms and legs, considerable anesthesia, plantar ulcer, atrophy interosseous muscles, fingers slightly clawed, saddle nose.

Progress in hospital: Gradual cessation of activity during one and one-half years in hospital.

Treatment: Chaulmoogra oil by mouth, total 2 liters; physiotherapy consistently for one and one-half years.

Sequelæ: Saddle nose, slight contraction fingers, some atrophy interosseous muscles.

Outcome: No recurrence in six months.

CASE 53-227

Condition on admission: Filipino male, age 19, well developed, well nourished; duration of leprosy one year, type mixed. Small lepromata on back; diffuse thickening of skin of hands, arms, face, and neck; brown pigmentation over much of body; ulnar nerves enlarged and nodular.

Progress in hospital: Had eight attacks of lepra fever with outcroppings of evanescent nodules; symptoms gradually disappeared over six and one-half years' stay in hospital.

Treatment: Mercurochrome intravenously 33 injections, dose 10 to 25 cubic centimeters. Ethyl esters of chaulmoogra oil about 215 cubic centimeters. Fowler's solution for 1 year. Chaulmoogra oil by mouth, about 17 liters. Physiotherapy one and one-half years.

Sequelæ: No visible signs of leprosy.

Outcome: No recurrence in six months.

CASE 54-255

Condition on admission: White male, age 17, well developed, well nourished, nodular type; duration of leprosy one year; ear lobes thickened; thickened patches over elbows; two pigmented patches on back.

Progress in hospital: Several attacks of lepra fever with evanescent nodules; improvement gradual over five and one-half years' stay in hospital.

Treatment: Mercurochrome, intravenously, 22 cubic centimeters; ethyl esters of chaulmoogra oil, 520 cubic centimeters; chaulmoogra oil by mouth, 15 liters; Fowler's solution three years; smallpox vaccine irregularly; benzocaine-chaulmoogra oil, 2 liters; physiotherapy four years.

Sequelæ: No evidence of leprosy.

Outcome: No recurrence in six months.

CASE 55-334

Condition on admission: White female, age 49, general health good, duration of leprosy one year, type mixed; diffuse thickenings face, pigmentation on legs, anesthesia to pain, heat, and cold on extremities; atrophy of muscles both hands, all fingers contracted; one cornea obliterated by leproma, other semiopaque, saddle nose, partial facial paralysis.

Progress in hospital: Trophic ulcers of feet developed and subsequently healed, after curettement and osteotomy; several attacks of lepra fever and evanescent nodules, improvement slow over four and one-half years in hospital.

Treatment: Mercurochrome intravenously 60 cubic centimeters; ethyl esters of chaulmoogra oil, total 60 cubic centimeters; benzocaine-chaulmoogra oil, 1 liter; chaulmoogra oil by mouth, total 10 liters; physiotherapy consistently.

Sequelæ: Contractions of fingers unchanged, eyes unchanged, otherwise no evidence of leprosy.

Outcome: No recurrence for six months.

CASE 56-400

Condition on admission: White male, age 23, well developed, well nourished, right leg amputated from accident, duration of leprosy three years, type anesthetic; red macules over most of body, small ulcer left foot; atrophy and some contraction of fingers, partial facial paralysis; ptosis both eyelids.

Progress in hospital: Slow, consistent improvement during four years in hospital.

Treatment: Mercurochrome, intravenously, 70 cubic centimeters; chaulmoogra oil by mouth, total 1 liter; physiotherapy intermittently.

Sequelæ: No skin lesions present; trophic ulcer left foot and muscular atrophy with contractions unchanged.

Outcome: No recurrence for six months.

CASE 57-441

Condition on admission: Chinese male, age 29, well developed and well nourished; duration of leprosy one year, type anesthetic. Red spots on face, buttocks, and legs; anesthesia ulnar side of forearms, diminished sensation in feet; left facial paralysis.

Progress in hospital: Slow improvement during three years' stay in hospital.

Treatment: Chaulmoogra oil by mouth, total 10 liters; benzocaine-chaulmoogra oil, 560 cubic centimeters.

Sequelæ: Sensation improved, facial paralysis unchanged.

Outcome: No recurrence in six months.

CASE 58-128

Condition on admission: White male, age 23, duration of leprosy eight years, type anesthetic, well developed and well nourished; interosseous muscles atrophic, contractions all fingers; macules scattered over entire body, considerable anesthesia; ectropion of right eye.

Progress in hospital: Plastic operation on eye; slow improvement during 7½ years' stay in hospital.

Treatment: Salvarsan 9 injections; tryparsamide 20 injections, ethyl esters of chaulmoogra, 355 cubic centimeters; benzocaine-chaulmoogra oil, 520 cubic centimeters; chaulmoogra oil by mouth, 14 liters, strychnine one-sixtieth grain irregularly; physiotherapy one year.

Sequelæ: No leprosy skin lesions, deformities of fingers unchanged.

Outcome: No recurrence in six months.

CASE 59-172

Condition on admission: White male, age 36, duration of leprosy two years, type nodular. Few nodules on forehead; diffuse thickening of skin of face, numerous nodules on body.

Progress in hospital: One attack of lepra fever with evanescent nodules, otherwise slow improvement during seven and one-half years' stay in hospital.

Treatment: Chaulmoogra oil by mouth 16½ liters.

Sequelæ: No evidence of leprosy.

Outcome: No recurrence in six months.

CASE 60-128

Condition on admission: White male, age 21, well developed and well nourished; duration of leprosy four years, type anesthetic; double claw-hand, plantar ulcers both feet, anesthesia both arms.

Progress in hospital: Slow improvement during eight years' stay in hospital.

Treatment: Chaulmoogra oil, 10 liters; strychnine one-sixtieth grain t. i. d., six years; physiotherapy four years.

Sequelæ: Contractions of fingers and anesthesia unchanged.

Outcome: No recurrence for six months.

CASE 61-403

Condition on admission: White female, age 23, well developed, poorly nourished, duration of leprosy one year, type anesthetic; numerous patches of anesthesia on body, arms and legs; atrophy interosseous and contraction of all fingers.

Progress in hospital: Slow improvement two years, rapid improvement last two years.

Treatment: Ethyl esters of chaulmoogra 50 cubic centimeters; strychnine one-sixtieth grain t. i. d., three years; benzocaine-chaulmoogra oil, one liter; physiotherapy three years.

Sequelæ: Anesthesia almost completely disappeared, hands normal.

Outcome: No recurrence for six months.

CASE 62-294

Condition on admission: Hawaiian, male, 27 years of age. Anesthetic type; well developed and general physical condition fair. Very few manifestations of leprosy. Duration of leprosy two years. Several small depigmented patches over both arms. Slight thickening of ulnar nerves. Anesthetic to pain over all small depigmented patches. Right leg has been amputated just below hip joint due to tuberculosis according to his history.

Progress in hospital: Slow improvement of all leprosy lesions. Has had three pulmonary hemorrhages since admittance. Appendix removed in 1925.

Treatment: Chaulmoogra oil by mouth in doses of from 27 to 75 drops t. i. d. since admittance. Total 20 liters.

Sequelæ: No visible signs of leprosy.

Outcome: No recurrence for six months.

CASE 63-274

Condition on admission: White male, age 47, duration of leprosy 10 years. Mixed type; well developed, muscular and robust, general health good. Mentally defective. Leonine appearance, nodules in both ear lobes, small macules over back and ulcers on both great toes. Skin over both hands and wrists thickened and bluish in color. Symmetrical brown mottling of skin over extensor surfaces of forearms and lower two-thirds of arms. No anesthesia detectable.

Progress in hospital: Leprosy has shown gradual marked improvement. His mental condition remains about the same as on admission.

Treatment: Has taken only 41 cubic centimeters of ethyl esters of chaulmoogra oil over a period of two years in doses of 2 cubic centimeters weekly.

Sequelæ: No visible signs of leprosy lesions.

Outcome: No recurrence for six months.

CASE 64-40

Condition on admission: White male, age 32, duration of leprosy nine years. Mixed type; emaciated and general health poor. Brown pigmented spots cover entire body. Anesthesia over nearly entire body. Ulcers on both feet. Mus-

cular atrophy in both hands. Hair of eyebrows and lashes gone. Nose saddled. All phalanges of both hands and feet absorbed.

Progress in hospital: Became blind in both eyes due to corneal ulcerations. The arrest of leprosy has been a very slow progressive process extending over a period of 20 years.

Treatment: Has taken no routine treatment excepting paliative.

Sequelæ: Mutilations of hands, feet, and face remain. Also anesthesia over entire body and total blindness.

Outcome: No recurrence for six months.

CASE 65-453

Condition on admission: White male, age 40, duration of leprosy 17 years. Anesthetic type; general health poor. No lesions visible excepting trophic ulcers on plantar surface both feet, muscular atrophy interosseous muscles both hands with contraction of all fingers and toes. Ptosis both eyelids.

Progress in hospital: Marked improvement in atrophic conditions and general health.

Treatment: Chaulmoogra oil by mouth in doses of from 25 to 50 gtt. t. i. d., total of 12 liters. Hydrotherapy, thermotherapy, massage, and ultra violet rays regularly during entire stay in hospital.

Sequelæ: No evidence of active lesions. Mutilations of hands, feet, and face, also anesthesia remains.

Outcome: No recurrence for six months.

Summary

Abstracts are submitted from the clinical records of 65 lepers paroled during 10 years from the National Leprosarium at Carrville, La.

Twelve paroled patients were of the nodular type on admission, with average ages of 39.5 years and an estimated average duration of 3.7 years prior to segregation. The average period of hospitalization for this group was 5.8 years.

Twenty-six paroled patients were of the mixed type on admission, with average ages of 40 years and an estimated average duration of 6.8 years prior to segregation. The average period of hospitalization for this group was 5.5 years.

Twenty-seven paroled patients were of the anesthetic type on admission with average ages of 30.9 years and an estimated average duration of 6.5 years prior to segregation. The average period of hospitalization for this group was 9 years.

Fifty-five (33 active and 22 quiescent) lepers received crude chaulmoogra oil by mouth (39 received additional treatments).

Twelve (7 active and 5 quiescent) lepers received benzocaine-chaulmoogra oil by intramuscular injection (8 received additional treatments).

Twenty-one (15 active and 6 quiescent) lepers received the ethyl esters of chaulmoogra oil by intramuscular injection (13 received additional treatments).

Nine (4 active and 5 quiescent) lepers received mercurochrome intravenously (5 received additional treatments).

Four (2 active and 2 quiescent) lepers received Fowler's solution in conjunction with other treatments.

Three (1 active and 2 quiescent) lepers received salvarsan in conjunction with other treatments.

One active leper received tryparsamide in conjunction with other treatments.

Four (2 active and 2 quiescent) lepers received intramuscular injections of smallpox vaccine (3 received additional treatments).

Twenty-five (15 active and 10 quiescent) lepers received various forms of physiotherapy (23 received additional treatments).

Two patients, during their entire stay in the hospital, declined to receive treatment.

Comment

A critical evaluation of medicinal treatment as given in this hospital is impossible because of the numerous factors involved; each leper might have been admitted as an early or late case and during hospitalization his disease might have been active or quiescent; he might have manifested symptoms of skin, nerve, or mixed leprosy; he might have taken one or several treatments over long or short periods of time. In addition, there must be weighed the importance of improved hygiene, including general medical, surgical, and dental care and prophylaxis, dietary balance, and the readjustment of mental equilibrium so frequently disturbed by the difficulties encountered by the average leper in public life.

Presumptive conclusions may be drawn from a comparison of the clinical conditions of lepers, treatments, and parole records of 10 years ago, with present conditions.

(a) Hospital records and personal observations indicate that, on the average, no appreciable change has taken place in the severity of the cases and that an approximately equal ratio of early and advanced cases are hospitalized.

(b) Treatment a decade ago consisted largely of chaulmoogra oil administered intramuscularly and orally, ethyl esters of chaulmoogra oil, Fowler's solution, and general supportive measures. To-day, to the older therapeutic measures have been added a variety of experimental treatments, some of which have proved of definite value. In addition to treatment directed toward the cure of leprosy itself, the patients receive the attention of consultants in the specialties and greatly enlarged hygienic, psychotherapeutic, and physiotherapeutic facilities.

(c) Paroles, until 10 years ago, were granted after careful physical examination supplemented by a few bacterioscopic examinations, relapses over a period of 35 years amounted to 31 per cent. For 10

years parole requirements have been rigid and based on repeated physical and bacterioscopic examinations; relapses during this time have been 3 per cent.

Conclusions

(1) Advanced therapeutic measures and improved methods of hospitalization have increased the parole rate in this hospital.

(2) A number of variable conditions and the impracticability of control experiments preclude the isolating of the outstanding factor responsible for the recoveries here reported.

(3) Crude chaulmoogra oil administered orally and intramuscularly has been most continuously taken by the largest number of the paroled patients.

DEATH RATES IN A GROUP OF INSURED PERSONS

Rates for Principal Causes of Death for January, 1930

The accompanying table, taken from the Statistical Bulletin for February, 1930, issued by the Metropolitan Life Insurance Co., presents the mortality record of the industrial insurance department of the company for January, 1930, as compared with the preceding month, December, 1929, and with January, 1929. Death rates are given for the principal causes of death. They are based on a strength of approximately 19,000,000 insured persons in the United States and Canada.

Health conditions in the United States during January, 1930, were in marked contrast to those obtaining during the first month of last year, when the influenza epidemic which was sweeping the country was at its peak. The January mortality rate for these persons for 1929 was the highest of the decade, 13.4 per 1,000, while the rate for January of this year is stated to be the lowest yet recorded, 9.4 per 1,000, as compared with the previous low rate of 9.41 for January, 1927.

All four of the principal epidemic diseases of childhood registered lower death rates for the month this year than last. In regard to diphtheria the bulletin states:

The drop for diphtheria from 13.4 in 1929 to 10.9 in 1930 is particularly noteworthy. When the diphtheria death rate increased somewhat three years ago, those opposed to toxin-antitoxin immunization were disposed to make capital out of the rise, inasmuch as it occurred in the face of an increase in the number of persons who had been inoculated. Public health workers contended that the 1927 diphtheria record was merely a temporarily unfavorable phase in a situation marked by practically continuous improvement. This viewpoint has been sustained by later developments. The diphtheria death rate dropped again in 1928, fell to a new minimum in 1929, and now bids fair to show a further and pronounced decrease to a new low point in 1930.

The only causes of death which have higher death rates for January of this year than last are homicides and automobile fatalities. The automobile fatality rate shows an increase of 13½ per cent.

Death rates (annual basis) per 100,000 for principal causes of death, January, 1930

[Industrial department, Metropolitan Life Insurance Co.]

Cause of death	Death rate per 100,000 lives exposed ¹				
	January, 1930	Decem- ber, 1929 ²	January, 1929 ³	Year	
				1929 ³	1928
Total, all causes.....	940.1	869.6	1,344.9	916.2	916.6
Typhoid fever.....	1.1	2.1	1.8	2.3	2.7
Measles.....	2.1	1.8	3.2	2.9	5.2
Scarlet fever.....	3.8	3.3	4.2	2.6	2.7
Whooping cough.....	4.5	3.3	9.3	5.6	5.7
Diphtheria.....	10.9	10.4	13.4	8.6	9.7
Influenza.....	26.2	20.5	197.7	41.1	24.8
Tuberculosis (all forms).....	79.7	74.1	94.0	85.2	90.1
Tuberculosis of respiratory system.....	69.8	66.2	84.6	75.2	78.8
Cancer.....	74.4	75.1	80.9	76.0	75.7
Diabetes mellitus.....	22.3	16.7	28.2	18.0	17.6
Cerebral hemorrhage.....	50.3	³ 57.7	³ 68.3	56.9	56.7
Organic diseases of heart.....	161.3	144.5	202.3	144.0	142.2
Pneumonia (all forms).....	108.8	87.9	212.8	86.9	80.3
Other respiratory diseases.....	13.2	10.8	29.2	11.4	12.4
Diarrhea and enteritis.....	11.6	12.7	14.2	20.4	24.0
Bright's disease (chronic nephritis).....	73.7	65.6	85.7	68.1	70.5
Puerperal state.....	12.0	11.4	14.9	13.3	13.9
Suicides.....	8.6	7.5	8.7	8.4	8.3
Homicides.....	7.0	6.9	6.7	6.4	6.7
Other external causes (excluding suicides and homi- cides).....	61.3	65.6	62.1	63.9	62.6
Traumatism by automobiles.....	20.2	21.3	17.8	20.6	18.4
All other causes.....	198.4	191.8	210.4	194.0	195.7

¹ All figures in this table include infants insured under 1 year of age.² All 1929 death rates subject to slight correction, as they are based on provisional estimate of lives exposed to risk.³ Rate not comparable with that for 1930.

COURT DECISION RELATING TO PUBLIC HEALTH

Osteopath held a "physician" under law prescribing qualifications for city health officers.—(Washington Supreme Court; State ex rel. Walker v. Dean, 284 P. 756; decided Feb. 3, 1930.) The question was presented as to whether or not a legally qualified osteopathic physician was "a legally qualified physician" within the meaning of section 6092, Remington's Compiled Statutes, which provided for the appointment of a legally qualified physician as city health officer. The word "physician" was not defined in the State laws. At the time of the enactment of section 6092, there was no law authorizing the licensing of osteopaths, and, therefore, osteopaths were not within the contemplation of the legislature when it enacted section 6092.

The supreme court, however, decided that, in construing such section, in so far as the same prescribed qualifications for city health officers, reference should be had to the laws in force at the time that an appointment thereunder was made, and that the inquiry was not governed by those laws which were in force at the time that the section was enacted. The court then decided that a legally qualified osteopathic physician was a legally qualified physician within the purview of section 6092.

DEATHS DURING WEEK ENDED MARCH 15, 1930

Summary of information received by telegraph from industrial insurance companies for the week ended March 15, 1930, and corresponding week of 1929. (From the Weekly Health Index, March 19, 1930, issued by the Bureau of the Census, Department of Commerce)

	Week ended Mar. 15, 1930	Corresponding week, 1929
Policies in force.....	75, 564, 251	73, 544, 830
Number of death claims.....	15, 738	16, 748
Death claims per 1,000 policies in force, annual rate.....	10. 9	11. 9

Deaths from all causes in certain large cities of the United States during the week ended March 15, 1930, infant mortality, annual death rate, and comparison with corresponding week of 1929. (From the Weekly Health Index, March 19, 1930, issued by the Bureau of the Census, Department of Commerce)

City	Week ended Mar. 15, 1930		Annual death rate per 1,000 corresponding week, 1929	Deaths under 1 year		Infant mortality rate, week ended Mar. 15, 1930 ¹
	Total deaths	Death rate ¹		Week ended Mar. 15, 1930	Corresponding week, 1929	
Total (65 cities).....	7, 851	13. 8	14. 7	771	888	169
Akron.....	41			10	11	91
Albany.....	37	16. 0	16. 0	6	2	131
Atlanta.....	92	18. 8	16. 1	9	11	95
White.....	49			3	5	95
Colored.....	43	(²)	(²)	6	6	95
Baltimore.....	252	15. 7	16. 1	18	30	61
White.....	193			9	18	39
Colored.....	59	(²)	(²)	9	12	146
Birmingham.....	78	18. 3	18. 3	4	15	37
White.....	29			0	7	0
Colored.....	49	(²)	(²)	4	8	95
Boston.....	246	16. 0	17. 7	26	26	73
Bridgeport.....	40			1	3	17
Buffalo.....	151	14. 2	16. 1	12	22	53
Cambridge.....	31	12. 8	12. 8	5	2	93
Camden.....	44	16. 9	16. 2	6	5	109
Canton.....	28	12. 5	12. 5	2	1	50
Chicago.....	766	12. 6	12. 6	83	62	73
Cincinnati.....	164			12	13	71
Cleveland.....	206	10. 6	13. 2	27	28	81
Columbus.....	70	12. 2	15. 3	5	10	49
Dallas.....	40	9. 6	14. 8	6	16	
White.....	32			5	13	
Colored.....	8	(²)	(²)	1	3	
Dayton.....	48	13. 6	10. 5	2	4	30
Denver.....	74	13. 1	15. 6	5	10	52
Des Moines.....	43	14. 8	10. 6	3	6	52
Detroit.....	332	12. 6	13. 8	64	53	99
Duluth.....	28	12. 5	12. 1	3	0	81
El Paso.....	32	14. 2	22. 1	2	9	
Erie.....	24			4	1	85
Fall River.....	26	10. 1	13. 2	1	1	23
Flint.....	32	11. 2	11. 9	5	7	58
Fort Worth.....	28	8. 6	11. 9	2	5	
White.....	22			2	5	
Colored.....	6	(²)	(²)	0	0	
Grand Rapids.....	35	11. 1	12. 1	3	2	46
Houston.....	73			7	10	
White.....	46			5	6	
Colored.....	27	(²)	(²)	2	4	
Indianapolis.....	101	13. 8	15. 3	3	3	22
White.....	83			2	3	17
Colored.....	18	(²)	(²)	1	0	54
Jersey City.....	81	13. 0	16. 2	6	12	52

¹ Annual rate per 1,000 population.

² Deaths under 1 year per 1,000 births. Cities left blank are not in the registration area for births.

³ Data for 73 cities.

⁴ Deaths for week ended Friday.

⁵ In the cities for which deaths are shown by color, the colored population in 1920 constituted the following percentages of the total population: Atlanta, 31; Baltimore, 15; Birmingham, 39; Dallas, 15; Fort Worth, 14; Houston, 25; Indianapolis, 11; Kansas City, Kans., 14; Knoxville, 15; Louisville, 17; Memphis, 38; Nashville, 30; New Orleans, 26; Richmond, 32; and Washington, D. C., 25.

Deaths from all causes in certain large cities of the United States during the week ended March 15, 1930, infant mortality, annual death rate, and comparison with corresponding week of 1929. (From the Weekly Health Index, March 19, 1930, issued by the Bureau of the Census, Department of Commerce)—Continued

City	Week ended Mar. 15, 1930		Annual death rate per 1,000, corresponding week, 1929	Deaths under 1 year		Infant mortality rate, week ended Mar. 15, 1930 ²
	Total deaths	Death rate ¹		Week ended Mar. 15, 1930	Corresponding week, 1929	
Kansas City, Kans.	20	12.8	18.1	3	5	71
White	22			3	3	80
Colored	7	(⁹)	(⁹)	0	2	0
Kansas City, Mo.	113	15.1	20.8	7	28	54
Knoxville	28	13.9	12.9	3	5	70
White	20			3	5	78
Colored	8	(⁹)	(⁹)	0	0	0
Los Angeles	251			16	29	49
Louisville	69	10.9	14.9	2	6	17
White	47			2	5	20
Colored	22	(⁹)	(⁹)	0	1	0
Lowell	40			7	2	166
Lynn	24	11.9	11.4	2	2	51
Memphis	99	27.1	18.9	7	8	83
White	47			1	3	18
Colored	52	(⁹)	(⁹)	6	5	202
Milwaukee	104	10.0	13.1	12	23	60
Minneapolis	78	8.9	10.9	2	11	13
Nashville	53	19.8	23.2	6	5	93
White	29			6	2	123
Colored	24	(⁹)	(⁹)	0	3	0
New Bedford	33			4	4	103
New Haven	47	13.0	11.7	1	5	19
New Orleans	151	18.3	18.7	9	15	52
White	93			5	6	44
Colored	58	(⁹)	(⁹)	4	9	67
New York	1,634	14.2	14.9	180	186	78
Bronx Borough	217	11.9	13.1	22	21	52
Brooklyn Borough	608	13.7	12.2	72	61	77
Manhattan Borough	632	18.8	21.3	61	91	100
Queens Borough	123	7.5	10.1	19	10	55
Richmond Borough	54	18.7	20.4	6	3	112
Newark, N. J.	110	12.1	13.2	12	17	63
Oakland	71	13.5	12.6	7	3	84
Oklahoma City	32			3	4	59
Omaha	52	12.2	18.7	4	8	45
Paterson	33	11.9	12.2	4	2	70
Philadelphia	539	13.6	13.8	46	55	68
Pittsburgh	226	17.5	16.9	27	26	99
Portland, Oreg.	92			8	5	98
Providence	64	11.7	17.1	6	15	35
Richmond	64	17.2	19.0	1	6	15
White	35			1	4	22
Colored	29	(⁹)	(⁹)	0	2	0
Rochester	95	15.1	12.7	6	7	53
St. Louis	229	14.1	17.8	22	26	71
St. Paul	50			4	3	41
Salt Lake City ¹	26	9.8	15.1	0	4	0
San Antonio	81	19.4	16.0	12	7	63
San Diego	47			3	3	48
San Francisco	173	15.4	14.0	7	8	94
Schenectady	32	17.9	11.2	3	1	119
Seattle	90	13.5	9.1	12	3	98
Somerville	24	12.2	11.2	3	1	52
Spokane	25	11.9	15.8	2	6	158
Springfield, Mass.	55	19.1	13.2	10	2	37
Syracuse	56	14.7	17.8	3	6	51
Tacoma	27	12.7	10.9	2	0	30
Toledo	89	14.8	13.7	4	4	170
Trenton	42	15.8	13.1	0	3	0
Utica	29	14.5	15.0	6	1	104
Washington, D. C.	147	13.9	17.1	18	14	86
White	98			10	2	142
Colored	49	(⁹)	(⁹)	8	12	102
Waterbury	29			4	6	68
Wilmington, Del.	31	12.6	10.6	3	3	39
Worcester	52	13.7	16.1	3	7	45
Yonkers	20	8.6	11.6	2	7	63
Youngstown	30	9.0	15.3	4	5	

¹ Deaths for week ended Friday.

² In the cities for which deaths are shown by color, the colored population in 1929 constituted the following percentages of the total population: Atlanta, 31; Baltimore, 15; Birmingham, 30; Dallas, 15; Fort Worth, 14; Houston, 25; Indianapolis, 11; Kansas City, Kans., 14; Knoxville, 15; Louisville, 17; Memphis, 38; Nashville, 30; New Orleans, 29; Richmond, 32; and Washington, D. C., 25.

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for Weeks Ended March 15, 1930, and March 16, 1929

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended March 15, 1930, and March 16, 1929

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Mar. 15, 1930	Week ended Mar. 16, 1929	Week ended Mar. 15, 1930	Week ended Mar. 16, 1929	Week ended Mar. 15, 1930	Week ended Mar. 16, 1929	Week ended Mar. 15, 1930	Week ended Mar. 16, 1929
New England States:								
Maine.....	1	4	7	25	73	237	0	2
New Hampshire.....	4	2	9	20	10	3	0	0
Vermont.....	4			8	38	19	0	0
Massachusetts.....	71	91	8	60	915	360	7	2
Rhode Island.....	25	10	2	6	1	53	0	0
Connecticut.....	15	17	14	51	16	533	0	2
Middle Atlantic States:								
New York.....	171	270	129	178	649	1,162	12	41
New Jersey.....	132	105	21	64	591	279	8	6
Pennsylvania.....	190	143			1,176	1,963	10	21
East North Central States:								
Ohio.....	78	99	61	114	626	2,099	15	10
Indiana.....	24	30		42	61	439	22	0
Illinois.....	172	139	59	64	614	1,312	10	11
Michigan.....	72	84	5	20	864	626	41	47
Wisconsin.....	18	20	44	122	947	563	2	21
West North Central States:								
Minnesota.....	17	27	2	1	249	592	6	1
Iowa.....	15	11			624	16	6	2
Missouri.....	45	66	19	41	75	516	18	26
North Dakota.....	4	11			32	94	3	3
South Dakota.....	1	11			112	46	1	1
Nebraska.....	28	14		9	490	43	3	2
Kansas.....	15	11	5	36	522	345	4	7
South Atlantic States:								
Delaware.....	2		2		11	62	0	0
Maryland.....	30	14	45	134	41	140	2	1
District of Columbia.....	17	16	2	5	14	19	0	0
West Virginia.....	15	10	33	27	90		1	1
North Carolina.....	37	23	17		28	86	6	3
South Carolina.....	18	14	914	811		10	2	0
Georgia.....	9	5	103	96	262	25	0	9
Florida.....	7	8	9	16	301	53	1	1
East South Central States:								
Kentucky.....					99	37	2	1
Tennessee.....		14	96	395	265	9	3	0
Alabama.....	21	8	93	146	156	48	4	3
Mississippi.....	9	0					21	4
West South Central States:								
Arkansas.....	7	5	127	202	23	199	5	3
Louisiana.....	17	17	24	27	151	157	0	5
Oklahoma.....	14	21	119	236	132	84	3	8
Texas.....	49	42	124	190	106	43	2	2
Mountain States:								
Montana.....		4			32	95	5	3
Idaho.....				10	24	1	2	13
Wyoming.....		3	1		6	61	1	0
Colorado.....	6	5	3	4	170	10	0	12
New Mexico.....	6	5		1	83	6	1	4
Arizona.....	9	5	8	7	7	57	3	15
Utah.....				7	214	2	6	9
Pacific States:								
Washington.....	9	4	2	1	252	190	2	7
Oregon.....	5	9	55	99	54	159	0	0
California.....	71	58	35	111	1,606	59	7	20

¹ New York City only.

² Week ended Friday.

³ Figures for 1930 are exclusive of Oklahoma City and Tulsa and for 1929 are exclusive of Oklahoma City only.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended March 15, 1930, and March 16, 1929—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Mar. 15, 1930	Week ended Mar. 16, 1929	Week ended Mar. 15, 1930	Week ended Mar. 16, 1929	Week ended Mar. 15, 1930	Week ended Mar. 16, 1929	Week ended Mar. 15, 1930	Week ended Mar. 16, 1929
New England States:								
Maine.....	0	0	32	47	0	4	0	1
New Hampshire.....	0	0	18	19	0	1	0	0
Vermont.....	0	0	8	12	1	4	0	0
Massachusetts.....	1	1	274	381	0	0	5	5
Rhode Island.....	0	0	32	23	0	0	0	0
Connecticut.....	1	0	123	68	0	9	3	0
Middle Atlantic States:								
New York.....	4	1	650	618	19	1	12	8
New Jersey.....	1	0	271	205	0	0	3	1
Pennsylvania.....	0	0	501	475	1	0	3	10
East North Central States:								
Ohio.....	0	0	525	372	232	81	8	5
Indiana.....	0	0	199	355	114	83	3	3
Illinois.....	2	0	593	482	164	107	5	10
Michigan.....	0	1	364	530	39	47	2	4
Wisconsin.....	0	0	180	203	34	4	1	1
West North Central States:								
Minnesota.....	0	0	176	164	3	1	3	1
Iowa.....	0	0	99	235	93	43	0	2
Missouri.....	1	1	102	100	69	40	1	0
North Dakota.....	0	2	36	54	13	0	3	2
South Dakota.....	0	0	22	31	34	13	1	0
Nebraska.....	2	0	140	150	44	57	0	0
Kansas.....	0	0	153	166	63	50	1	1
South Atlantic States:								
Delaware.....	0	0	9	6	0	0	0	0
Maryland.....	0	0	89	66	0	0	3	5
District of Columbia.....	0	0	19	19	0	0	0	0
West Virginia.....	0	2	36	19	32	15	18	12
North Carolina.....	0	0	38	42	13	55	2	7
South Carolina.....	0	1	3	17	6	3	10	7
Georgia.....	0	0	18	12	0	4	1	0
Florida.....	0	1	2	12	0	0	2	6
East South Central States:								
Kentucky.....	1	0	60	51	4	39	4	1
Tennessee.....	1	0	51	69	12	5	2	2
Alabama.....	0	0	15	16	3	2	2	4
Mississippi.....	0	0	12	15	1	2	5	4
West South Central States:								
Arkansas.....	0	0	16	30	26	0	0	5
Louisiana.....	0	0	27	69	3	10	17	7
Oklahoma.....	0	0	33	47	92	106	9	6
Texas.....	1	1	85	45	125	67	6	1
Mountain States:								
Montana.....	1	0	49	29	13	2	2	4
Idaho.....	0	0	28	4	9	15	0	1
Wyoming.....	0	0	22	6	12	3	0	0
Colorado.....	0	0	11	27	26	19	0	0
New Mexico.....	0	0	11	20	8	2	2	3
Arizona.....	0	0	9	0	32	19	2	3
Utah.....	0	0	11	12	0	5	0	2
Pacific States:								
Washington.....	0	0	80	29	86	37	3	1
Oregon.....	0	0	29	48	31	43	0	1
California.....	3	3	214	507	92	60	8	6

¹ Week ended Friday.

² Figures for 1930 are exclusive of Oklahoma City and Tulsa and for 1929 are exclusive of Oklahoma City only.

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of monthly State reports is published weekly and covers only those States from which reports are received during the current week:

State	Menin- gococ- cus menin- gitis	Diph- theria	Influ- enza	Ma- lar- ia	Mea- sles	Pella- gra	Polio- mye- litis	Scarlet fever	Small- pox	Ty- phoid fever
<i>December, 1929</i>										
Delaware.....		16	4		4		1	24	0	2
Nevada.....			8				2	11		1
<i>January, 1930</i>										
Delaware.....		27	2		5		0	90	0	2
South Carolina.....		185	4,666	533	38	185	6	95	8	29
<i>February, 1930</i>										
Alabama.....	12	117	713	81	385	15	3	109	18	15
Arkansas.....	14	23	587	24	35	17	1	80	63	18
Georgia.....	20	43	537	98	732	26	1	100	2	8
Massachusetts.....	17	362	30	1	2,008	1	2	1,179	1	14
New Hampshire.....		4	9				0	63	0	
New Jersey.....	20	448	82		1,714		3	1,016	0	0
North Dakota.....	8	16	10		247		3	148	136	1
Porto Rico.....		43	71	870	226	2	0		0	31
South Carolina.....		97	3,985	483	26	226	1	72	7	18
Vermont.....		5			44		0	47	14	1
Wyoming.....	2	7	4		90		0	30	33	1

<i>December, 1929</i>		<i>Whooping cough:</i>		<i>Cases</i>	
Chicken pox:	Cases	Delaware.....			31
Delaware.....	51	South Carolina.....			468
Mumps:		<i>February, 1930</i>			
Delaware.....	4	Anthrax:			
Nevada.....	3	New Jersey.....			1
Undulant fever:		Porto Rico.....			1
Delaware.....	1	Chicken pox:			
Whooping cough:		Alabama.....			414
Delaware.....	13	Arkansas.....			255
<i>January, 1930</i>		Georgia.....			155
Chicken pox:		Massachusetts.....			1,024
Delaware.....	96	New Jersey.....			1,312
South Carolina.....	300	North Dakota.....			129
Dengue:		South Carolina.....			284
South Carolina.....	7	Vermont.....			251
Diarrhea:		Wyoming.....			10
South Carolina.....	355	Colibacillosis:			
Hookworm disease:		Porto Rico.....			1
South Carolina.....	91	Dengue:			
Mumps:		Georgia.....			1
Delaware.....	3	Diarrhea:			
South Carolina.....	121	South Carolina.....			494
Ophthalmia neonatorum:		Dysentery:			
South Carolina.....	12	Georgia.....			12
Paratyphoid fever:		Massachusetts.....			3
South Carolina.....	3	Porto Rico.....			27
Rabies in animals:		Fillariasis:			
South Carolina.....	8	Porto Rico.....			4
Tetanus:		German measles:			
South Carolina.....	1	Massachusetts.....			294
Tularemia:		New Jersey.....			634
South Carolina.....	1	Hookworm disease:			
Typhus fever:		Arkansas.....			4
South Carolina.....	1	Georgia.....			24
Undulant fever:		South Carolina.....			77
Delaware.....	1				

February, 1930—Continued		Cases	Septic sore throat:	Cases
Lead poisoning:			Georgia.....	23
Massachusetts.....	4		Massachusetts.....	19
New Jersey.....	12		Tetanus:	
Leprosy:			Massachusetts.....	1
Porto Rico.....	2		Porto Rico.....	4
Lethargic encephalitis:			Tetanus (infantile):	
Alabama.....	3		Porto Rico.....	23
Massachusetts.....	7		Trachoma:	
North Dakota.....	2		Massachusetts.....	9
South Carolina.....	1		Porto Rico.....	5
Mumps:			Trichinosis:	
Alabama.....	77		Georgia.....	1
Arkansas.....	172		Massachusetts.....	5
Georgia.....	155		New Jersey.....	4
Massachusetts.....	876		Tularaemia:	
North Dakota.....	226		Alabama.....	1
Porto Rico.....	11		Georgia.....	5
South Carolina.....	148		South Carolina.....	3
Vermont.....	5		Typhus fever:	
Wyoming.....	67		Alabama.....	2
Ophthalmia neonatorum:			Georgia.....	6
Arkansas.....	1		Undulant fever:	
Massachusetts.....	152		Alabama.....	1
New Jersey.....	3		Wyoming.....	1
Porto Rico.....	2		Vincent's angina:	
South Carolina.....	8		North Dakota.....	11
Paratyphoid fever:			Whooping cough:	
South Carolina.....	6		Alabama.....	294
Puerperal fever:			Arkansas.....	32
Porto Rico.....	8		Georgia.....	100
Rabies in animals:			Massachusetts.....	1,337
South Carolina.....	11		New Jersey.....	566
Rabies in man:			North Dakota.....	69
Alabama.....	1		Porto Rico.....	105
Scabies:			South Carolina.....	523
North Dakota.....	22		Vermont.....	32
			Wyoming.....	20

Cases of Certain Communicable Diseases Reported for the month of December, 1929, by State Health Officers

State	Chicken pox	Diph- theria	Measles	Mumps	Scarlet fever	Small- pox	Tuber- culosis	Typhoid and para- typhoid fever	Whoop- ing cough
Maine.....	316	14	30	125	172	0	50	12	06
New Hampshire.....		17			76	0		0	
Vermont.....	177	11	120	7	76	22	12	1	98
Massachusetts.....	1,425	517	681	562	1,177	0	57	27	900
Rhode Island.....	56	36	5		72	0	42	2	34
Connecticut.....	706	106	45	114	321	0	109	10	189
New York.....	2,895	748	1,173	1,204	1,627	38	1,363	47	1,232
New Jersey.....	1,401	560	310		735	0	385	19	513
Pennsylvania.....	3,972	675	1,666	857	1,550	15	370	61	1,303
Ohio.....	3,255	362	1,996	369	1,285	753	631	53	615
Indiana.....	548	123	92	21	521	653	195	8	74
Illinois.....	2,290	960	1,525	603	2,333	520	736	39	860
Michigan.....	1,858	488	593	455	1,142	257	544	12	424
Wisconsin.....	1,721	68	2,117	334	416	175	137	20	560
Minnesota.....	1,642	123	795		529	75	142	26	216
Iowa.....		48			299	440		16	
Missouri.....	396	207	207	55	420	146	151	23	64
North Dakota.....	151	22	132	53	145	53	180	2	17
South Dakota.....	164	14	52	43	131	189	7	4	36
Nebraska.....	187	88	568	68	219	195	8	2	73
Kansas.....	746	118	457	244	528	172	144	14	190

Cases of Certain Communicable Diseases Reported for the month of December, 1929, by State Health Officers—Continued

State	Chicken pox	Diph- theria	Measles	Mumps	Scarlet fever	Small- pox	Tuber- culosis	Typhoid and para- typhoid fever	Whoop- ing cough
Delaware.....	51	16	4	4	24	0	1 15	2	13
Maryland.....	420	111	66	46	316	0	130	29	164
District of Columbia.....	96	47	3	---	75	0	77	2	19
Virginia.....	576	338	204	---	367	27	119	36	976
West Virginia.....	275	73	402	---	225	65	27	30	151
North Carolina.....	745	441	21	---	363	48	---	36	789
South Carolina.....	162	337	16	44	108	7	95	36	276
Georgia.....	132	89	90	54	119	2	47	10	56
Florida.....	103	55	31	88	42	12	16	8	30
Kentucky ²	---	---	---	---	---	---	---	---	---
Tennessee.....	143	109	77	12	156	43	162	38	77
Alabama.....	83	214	32	21	130	11	181	40	97
Mississippi.....	973	193	323	165	143	3	243	37	845
Arkansas.....	140	57	209	46	112	41	9	23	97
Louisiana.....	66	199	58	2	76	4	102	36	8
Oklahoma ³	86	191	88	7	194	262	46	37	41
Texas ²	---	---	---	---	---	---	---	---	---
Montana.....	70	13	117	497	173	68	11	9	34
Idaho.....	180	4	461	115	118	138	13	5	80
Wyoming.....	39	20	12	65	22	50	2	2	7
Colorado.....	549	51	75	115	180	105	126	9	106
New Mexico.....	84	79	12	27	46	8	51	14	10
Arizona.....	93	51	8	333	36	28	197	11	30
Utah ²	---	---	---	---	---	---	---	---	---
Nevada.....	---	---	---	3	11	---	12	1	---
Washington.....	791	63	183	339	240	363	136	15	78
Oregon.....	223	32	98	63	156	53	49	7	42
California.....	1,362	363	990	1,363	1,208	253	691	31	342

Case Rates per 1,000 Population (Annual Basis) for the Month of December, 1929

State	Chicken pox	Diph- theria	Measles	Mumps	Scarlet fever	Small- pox	Tuber- culosis	Typhoid and para- typhoid fever	Whoop- ing cough
Maine.....	4.67	0.21	0.44	1.85	2.54	.00	0.87	0.18	1.42
New Hampshire.....	---	.44	---	---	1.96	.00	---	.00	---
Vermont.....	2.91	.37	4.01	.23	2.54	.73	.40	.03	3.11
Massachusetts.....	3.87	1.40	1.85	1.53	3.19	.00	.15	.07	2.61
Rhode Island.....	.91	.58	.08	---	1.10	.00	.68	.03	.55
Connecticut.....	4.90	.74	.31	.79	2.23	.00	.76	.07	1.31
New York.....	2.92	.75	1.18	1.21	1.54	.04	1.37	.05	1.24
New Jersey.....	4.24	1.69	.94	---	2.22	.00	1.16	.06	1.55
Pennsylvania.....	4.69	.80	1.97	1.01	1.83	.02	.44	.07	1.54
Ohio.....	5.52	.61	3.39	.63	2.09	1.28	1.07	.09	1.04
Indiana.....	2.01	.45	.34	.08	1.92	2.40	.72	.03	.27
Illinois.....	3.60	1.54	2.40	.95	3.67	.82	1.16	.06	1.35
Michigan.....	4.66	1.22	1.49	1.14	2.87	.64	1.36	.08	1.06
Wisconsin.....	6.78	.27	8.34	1.32	1.64	.09	.54	.08	2.29
Minnesota.....	7.01	.53	3.39	---	2.16	.32	.61	.11	.92
Iowa.....	---	.23	---	---	1.45	2.13	---	.08	---
Missouri.....	1.32	.69	.69	.18	1.40	.49	.50	.08	.31
North Dakota.....	2.77	.40	2.42	.97	2.66	.97	3.31	.04	.31
South Dakota.....	2.71	.23	.86	.71	2.17	3.13	.12	.07	.60
Nebraska.....	1.55	.73	4.71	.56	1.82	1.62	.07	.02	.61
Kansas.....	4.77	.75	2.92	1.86	3.37	1.10	.92	.09	1.21

¹ Pulmonary.² Reports received weekly.³ Exclusive of Oklahoma City and Tulsa.

Case Rates per 1,000 Population (Annual Basis) for the Month of December, 1929—Continued

State	Chicken pox	Diph- theria	Measles	Mumps	Scarlet fever	Small- pox	Tuber- culosis	Typhoid and para- typhoid fever	Whoop- ing cough
Delaware.....	2.45	0.77	0.19	0.19	1.15	0.00	10.72	0.10	0.62
Maryland.....	3.02	.80	.48	.33	2.28	.00	.94	.21	1.18
District of Columbia.....	1.98	.98	.06	-----	1.57	.00	1.61	.04	.40
Virginia.....	2.60	1.53	.92	-----	1.66	.12	.54	.12	4.41
West Virginia.....	1.85	.49	2.70	-----	1.51	.44	.18	.20	1.01
North Carolina.....	2.94	1.74	.08	-----	1.43	.19	-----	.14	3.12
South Carolina.....	1.01	2.11	.10	.28	.68	.04	.59	.23	1.73
Georgia.....	.48	.32	.33	.20	.43	.01	.17	.04	.20
Florida.....	.83	.44	.25	.71	.34	.10	.13	.06	.24
Kentucky ¹	-----	-----	-----	-----	-----	-----	-----	-----	-----
Tennessee.....	.67	.51	.36	.06	.73	.20	.76	.18	.36
Alabama.....	.38	.97	.15	.10	.59	.05	.82	.18	.44
Mississippi.....	6.40	1.27	2.12	1.08	.94	.02	1.60	.24	5.56
Arkansas.....	.84	.34	1.25	.28	.67	.25	.05	.14	.58
Louisiana.....	.40	1.19	.35	.01	.46	.02	1.15	.22	.05
Oklahoma ²47	1.04	.48	.04	1.05	1.42	.25	.20	.22
Texas ³	-----	-----	-----	-----	-----	-----	-----	-----	-----
Montana.....	1.50	.28	2.51	10.66	3.71	1.46	.24	.19	.73
Idaho.....	3.80	.08	0.73	2.43	2.49	2.91	.27	.11	1.06
Wyoming.....	1.81	.93	.56	3.02	1.02	2.33	.09	.09	.33
Colorado.....	5.84	.54	.80	1.22	1.92	1.12	1.34	.10	1.13
New Mexico.....	2.47	2.33	.35	.79	1.35	.24	1.50	.41	.29
Arizona.....	2.24	1.23	.19	8.02	.87	.67	4.74	.28	.72
Utah ¹	-----	-----	-----	-----	-----	-----	-----	-----	-----
Nevada.....	-----	-----	-----	.46	1.67	-----	1.30	.15	-----
Washington.....	5.78	.46	1.34	2.48	1.75	2.65	.92	.11	.57
Oregon.....	2.87	.41	1.26	.81	2.01	.68	.63	.09	.54
California.....	3.43	.91	2.40	3.43	3.19	.64	1.74	.08	.86

¹ Pulmonary.² Reports received weekly.³ Exclusive of Oklahoma City and Tulsa.

RECIPROCAL NOTIFICATIONS

Notifications regarding communicable diseases sent during the month of January, 1930, by departments of health of certain States to other State health departments

Disease	Califor- nia	Illinois	Kansas	Minne- sota	New York	Ohio
Chicken pox.....	-----	1	-----	-----	1	-----
Diphtheria.....	-----	-----	-----	-----	2	-----
Gonorrhea.....	-----	-----	-----	2	-----	-----
Meningitis, epidemic.....	-----	2	-----	-----	-----	-----
Polio-myelitis.....	-----	1	-----	-----	-----	-----
Scarlet fever.....	-----	1	-----	3	2	-----
Smallpox.....	-----	6	-----	1	2	-----
Syphilis.....	-----	-----	3	1	-----	-----
Tuberculosis.....	-----	19	-----	31	-----	1
Tularaemia.....	-----	1	-----	-----	-----	-----
Typhoid fever.....	2	1	-----	1	2	-----
Undulant fever.....	-----	-----	-----	-----	2	-----

¹ Carrier.

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

The 97 cities reporting cases used in the following table are situated in all parts of the country and have an estimated aggregate population of more than 32,080,000. The estimated population of the 90 cities reporting deaths is more than 30,485,000. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

Weeks ended March 8, 1930, and March 9, 1929

	1930	1929	Estimated expectancy
<i>Cases reported</i>			
Diphtheria:			
46 States.....	1, 295	1, 730	
97 cities.....	553	808	922
Measles:			
45 States.....	12, 540	11, 667	
97 cities.....	3, 914	3, 263	
Meningococcus meningitis:			
46 States.....	310	297	
97 cities.....	128	164	
Poliomyelitis:			
47 States.....	19	20	
Scarlet fever:			
46 States.....	5, 328	5, 556	
97 cities.....	2, 027	1, 808	1, 610
Smallpox:			
46 States.....	1, 822	1, 264	
97 cities.....	155	72	85
Typhoid fever:			
46 States.....	206	159	
97 cities.....	52	32	29
<i>Deaths reported</i>			
Influenza and pneumonia:			
90 cities.....	1, 089	1, 367	
Smallpox:			
90 cities.....	0	0	

City reports for week ended March 8, 1930

The "estimated expectancy" given for diphtheria, poliomyelitis, scarlet fever, smallpox, and typhoid fever is the result of an attempt to ascertain from previous occurrence the number of cases of the disease under consideration that may be expected to occur during a certain week in the absence of epidemics. It is based on reports to the Public Health Service during the past nine years. It is in most instances the median number of cases reported in the corresponding weeks of the preceding years. When the reports include several epidemics, or when for other reasons the median is unsatisfactory, the epidemic periods are excluded and the estimated expectancy is the mean number of cases reported for the week during non-epidemic years.

If the reports have not been received for the full nine years, data are used for as many years as possible, but no year earlier than 1921 is included. In obtaining the estimated expectancy, the figures are smoothed when necessary to avoid abrupt deviation from the usual trend. For some of the diseases given in the table the available data were not sufficient to make it practicable to compute the estimated expectancy.

Division, State, and city	Chick- en pox, cases re- ported	Diphtheria		Influenza		Meas- les, cases re- ported	Mumps, cases re- ported	Pneu- monia, deaths re- ported
		Cases, esti- mated expect- ancy	Cases reported	Cases reported	Deaths reported			
NEW ENGLAND								
Maine:								
Portland	21	1	0		0	0	15	5
New Hampshire:								
Concord	0	0	0		0	6	0	3
Nashua	0	0	0		0	0	0	0
Vermont:								
Barre	11	0	0		0	0	0	0
Burlington	0	0	0		0	1	0	3
Massachusetts:								
Boston	51	30	16	1	1	143	93	34
Fall River	5	4	5	2	2	0	0	4
Springfield	14	4	0		0	1	1	2
Worcester	9	3	1		0	88	0	7
Rhode Island:								
Pawtucket	12	1	2		0	0	0	3
Providence	6	8	11		1	1	0	10
Connecticut:								
Bridgeport	2	7	0	4	4	1	0	7
Hartford	4	6	2	5	0	5	0	9
New Haven	63	1	1		0	0	10	7

City reports for week ended March 8, 1930—Continued

Division, State, and city	Chick- en pox, cases re- ported	Diphtheria		Influenza		Meas- les, cases re- ported	Mumps, cases re- ported	Pneu- monia, deaths, re- ported
		Cases, esti- mated expect- ancy	Cases reported	Cases reported	Deaths reported			
MIDDLE ATLANTIC								
New York:								
Buffalo.....	32	13	13	-----	0	5	7	16
New York.....	244	226	97	24	14	295	196	225
Rochester.....	21	8	1	-----	0	16	0	1
Syracuse.....	32	4	0	-----	1	7	86	6
New Jersey:								
Camden.....	2	6	4	-----	0	0	0	3
Newark.....	50	15	23	9	2	277	18	12
Trenton.....	13	3	5	-----	0	38	0	6
Pennsylvania:								
Philadelphia.....	92	70	21	9	6	91	72	83
Pittsburgh.....	31	20	22	2	5	191	11	45
Reading.....	13	3	1	-----	0	0	0	3
Scranton.....	9	4	4	-----	-----	3	0	-----
EAST NORTH CENTRAL								
Ohio:								
Cincinnati.....	16	10	0	-----	3	19	0	17
Cleveland.....	126	28	10	21	2	2	28	30
Columbus.....	11	4	1	4	3	60	18	10
Toledo.....	40	6	3	2	2	206	29	8
Indiana:								
Fort Wayne.....	3	3	4	-----	0	1	0	4
Indianapolis.....	20	7	0	-----	0	10	0	15
South Bend.....	6	2	0	-----	0	1	0	3
Terre Haute.....	4	0	0	-----	0	0	0	1
Illinois:								
Chicago.....	137	96	86	7	5	27	51	72
Springfield.....	27	0	0	1	1	0	1	0
Michigan:								
Detroit.....	97	54	46	2	4	549	55	53
Flint.....	29	2	2	-----	0	6	4	7
Grand Rapids.....	1	2	0	-----	1	0	2	3
Wisconsin:								
Kenosha.....	5	0	0	-----	0	1	0	0
Madison.....	3	0	0	-----	-----	47	0	-----
Milwaukee.....	200	17	3	1	1	17	77	12
Racine.....	2	2	0	-----	0	0	0	0
Superior.....	1	0	0	-----	0	20	1	0
WEST NORTH CENTRAL								
Minnesota:								
Duluth.....	3	0	0	-----	0	78	0	1
Minneapolis.....	24	14	0	-----	0	34	60	8
St. Paul.....	21	9	0	-----	0	7	18	6
Iowa:								
Davenport.....	2	0	0	-----	-----	6	2	-----
Des Moines.....	1	2	2	-----	-----	46	1	-----
Sioux City.....	4	1	1	-----	-----	52	3	-----
Waterloo.....	6	1	1	-----	-----	111	0	-----
Missouri:								
Kansas City.....	43	6	4	1	0	11	0	15
St. Joseph.....	1	1	1	-----	0	0	0	3
St. Louis.....	30	43	35	4	-----	5	17	-----
North Dakota:								
Fargo.....	2	0	0	-----	0	0	23	1
Grand Forks.....	0	0	0	-----	-----	0	0	-----
South Dakota:								
Aberdeen.....	23	0	0	-----	-----	1	1	-----
Sioux Falls.....	0	1	0	-----	-----	4	0	-----
Nebraska:								
Omaha.....	15	3	17	-----	0	64	0	4
Kansas:								
Topeka.....	30	1	2	1	1	108	9	1
Wichita.....	31	2	0	-----	0	14	3	4

City reports for week ended March 8, 1930—Continued

Division, State, and city	Chick- en pox, cases re- ported	Diphtheria		Influenza		Meas- les, cases re- ported	Mumps, cases re- ported	Pneu- monia, deaths, re- ported
		Cases, esti- mated expect- ancy	Cases reported	Cases reported	Deaths reported			
SOUTH ATLANTIC								
Delaware:								
Wilmington.....	4	2	1	1	0	2	0	11
Maryland:								
Baltimore.....	174	25	20	21	4	1	6	41
Cumberland.....	4	1	1		0	0	0	1
Frederick.....	0	0	0		0	0	0	0
District of Columbia:								
Washington.....	22	14	8	5	4	11	0	11
Virginia:								
Lynchburg.....	15	1	2		1	151	16	2
Norfolk.....	17	1	1		0	1	33	7
Richmond.....	2	2	0		1	0	3	8
Roanoke.....	3	1	0		0	21	1	9
West Virginia:								
Charleston.....	23	0	0	1	0	8	0	2
Wheeling.....	7	1	0		1	1	0	0
North Carolina:								
Raleigh.....	1	0	0		0	0	0	0
Wilmington.....	14	0	0		1	0	0	0
Winston-Salem.....		1						
South Carolina:								
Charleston.....	9	0	0	50	1	0	3	7
Columbia.....	11	0	1		0	0	10	3
Georgia:								
Atlanta.....	9	4	2	11	4	29	24	6
Brunswick.....	0	0	0		0	0	0	1
Savannah.....	2	0	0	10	0	0	0	1
Florida:								
Miami.....	0	3	2		0	2	3	1
St. Petersburg.....		0			1			4
Tampa.....	5	0	4		0	43	28	3
EAST SOUTH CENTRAL								
Kentucky:								
Covington.....	2	1	0		0	0	0	1
Tennessee:								
Memphis.....	21	4	0		1	2	15	13
Nashville.....	5	1	1		3	0	0	4
Alabama:								
Birmingham.....	15	2	3	7	4	3	1	12
Mobile.....	1	1	2	1	1	6	0	3
Montgomery.....	13	1	0	3		100	1	
WEST SOUTH CENTRAL								
Arkansas:								
Fort Smith.....	1	1	0			0	0	
Little Rock.....	26	0	0		0	0	1	2
Louisiana:								
New Orleans.....	1	13	18	12	6	43	0	14
Shreveport.....	2	0	0		0	0	16	5
Texas:								
Dallas.....	13	5	8		0	100	1	4
Fort Worth.....	28	4	0		2	2	0	4
Galveston.....	1	1	1		0	0	0	1
Houston.....	5	5	12		0	1	2	5
San Antonio.....	0	3	2		3	1	0	14
MOUNTAIN								
Montana:								
Billings.....	0	1	0		1	0	8	0
Great Falls.....	1	0	0		0	0	21	3
Helena.....	0	0	0		0	0	11	0
Missoula.....	0	0	0		0	0	0	0
Idaho:								
Boise.....	0	0	0		0	0	0	0
Colorado:								
Denver.....	57	10	8		1	146	27	9
Pueblo.....	18	1	0		1	1	56	1
New Mexico:								
Albuquerque.....	1	1	1		0	10	13	0

City reports for week ended March 8, 1930—Continued

Division, State, and city	Chick- en pox, cases re- ported	Diphtheria		Influenza		Meas- les, cases re- ported	Mumps, cases re- ported	Pneu- monia, deaths re- ported
		Cases, esti- mated expect- ancy	Cases reported	Cases reported	Deaths reported			
MOUNTAIN—CON.								
Arizona:								
Phoenix.....	6	0	0	-----	0	0	0	3
Utah:								
Salt Lake City....	14	2	2	-----	1	91	7	3
Nevada:								
Reno.....	0	1	0	-----	0	1	0	1
PACIFIC								
Washington:								
Seattle.....	57	5	1	-----		91	84	-----
Spokane.....	21	2	1	-----		1	0	-----
Tacoma.....	14	1	0	-----	0	16	0	3
Oregon:								
Portland.....	13	8	1	3	1	6	22	7
Salem.....	6	0	0	-----	0	0	19	0
California:								
Los Angeles.....	111	40	9	28	0	258	57	14
Sacramento.....	11	2	1	-----	0	3	39	8
San Francisco.....	46	18	7	-----	1	412	89	5

Division, State, and city	Scarlet fever		Smallpox			Tuber- culosis, deaths re- ported	Typhoid fever			Whoop- ing cough, cases re- ported	Deaths, all causes
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
NEW ENGLAND											
Maine:											
Portland.....	4	4	0	0	0	1	0	0	0	7	26
New Hampshire:											
Concord.....	1	1	0	0	0	0	0	0	0	0	13
Nashua.....	0	0	0	0	0	0	0	0	0	0	-----
Vermont:											
Barre.....	0	0	0	1	0	0	0	0	0	0	5
Burlington.....	0	0	0	0	0	0	0	0	0	0	12
Massachusetts:											
Boston.....	85	85	0	0	0	15	2	1	0	62	230
Fall River.....	5	2	0	0	0	1	0	0	0	2	21
Springfield.....	9	14	0	0	0	2	0	0	0	38	43
Worcester.....	9	9	0	0	0	4	0	0	0	11	76
Rhode Island:											
Pawtucket.....	2	4	0	0	0	0	0	0	0	13	26
Providence.....	11	14	0	0	0	3	0	0	0	50	91
Connecticut:											
Bridgeport.....	12	23	0	0	0	4	0	0	0	0	44
Hartford.....	6	7	0	0	0	3	0	0	0	3	45
New Haven.....	10	15	0	0	0	1	0	0	0	14	45
MIDDLE ATLANTIC											
New York:											
Buffalo.....	28	41	0	0	0	5	0	2	0	19	153
New York.....	363	287	0	0	0	87	7	4	1	65	1,610
Rochester.....	12	6	0	0	0	2	0	0	0	1	84
Syracuse.....	12	40	0	0	0	0	0	0	0	34	51
New Jersey:											
Camden.....	6	3	0	0	0	2	0	0	0	0	33
Newark.....	43	48	0	0	0	9	0	1	0	28	130
Trenton.....	6	15	0	0	0	1	1	1	0	4	30
Pennsylvania:											
Philadelphia.....	97	150	0	0	0	34	2	0	0	17	422
Pittsburgh.....	83	30	0	0	0	13	0	0	0	43	215
Reading.....	7	4	0	0	0	2	0	0	0	15	24
Scranton.....	3	6	0	0	-----	-----	0	0	-----	0	-----

City reports for week ended March 8, 1930—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuber- culosis, deaths reported	Typhoid fever			Whoop- ing cough, cases re- ported	Deaths, all causes
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
EAST NORTH CENTRAL											
Ohio:											
Cincinnati.....	22	21	1	4	0	7	0	0	0	1	147
Cleveland.....	50	79	0	0	0	18	1	2	1	100	232
Columbus.....	11	10	1	8	0	6	0	1	0	8	84
Toledo.....	14	13	0	9	0	5	1	1	0	7	71
Indiana:											
Fort Wayne.....	5	3	1	9	0	4	0	1	0	1	37
Indianapolis.....	14	26	10	10	0	9	1	0	0	2	24
South Bend.....	3	10	1	1	0	2	0	0	0	0	15
Terre Haute.....	3	4	0	0	0	1	0	0	0	0	15
Illinois:											
Chicago.....	134	328	2	1	0	51	2	1	0	55	767
Springfield.....	4	2	0	1	0	1	0	0	0	7	21
Michigan:											
Detroit.....	120	161	2	3	0	31	0	0	0	32	245
Flint.....	13	28	2	1	0	2	0	0	0	14	37
Grand Rapids.....	11	3	0	0	0	2	0	0	0	9	45
Wisconsin:											
Kenosha.....	3	8	1	0	0	0	0	0	0	2	18
Madison.....	5	6	0	1	0	0	0	0	0	4	20
Milwaukee.....	39	36	0	0	0	6	0	0	0	0	17
Racine.....	5	1	0	0	0	3	0	0	0	0	17
Superior.....	4	2	0	0	0	3	1	0	0	0	17
WEST NORTH CENTRAL											
Minnesota:											
Duluth.....	10	2	0	8	0	1	0	3	0	15	22
Minneapolis.....	60	23	3	0	0	5	0	0	0	7	104
St. Paul.....	34	25	1	0	0	1	0	0	0	18	66
Iowa:											
Davenport.....	2	1	0	8	0	0	0	0	0	0	42
Des Moines.....	9	26	1	8	0	0	0	0	0	9	0
Sioux City.....	1	3	1	1	0	0	0	0	0	0	0
Waterloo.....	3	2	1	17	0	0	0	0	0	0	0
Missouri:											
Kansas City.....	21	48	3	0	0	6	0	0	0	12	106
St. Joseph.....	2	3	0	1	0	0	0	0	0	0	28
St. Louis.....	37	31	2	4	0	9	1	1	1	6	249
North Dakota:											
Fargo.....	1	3	0	0	0	0	0	0	0	16	5
Grand Forks.....	0	5	0	5	0	0	0	0	0	0	0
South Dakota:											
Aberdeen.....	3	0	0	0	0	0	0	0	0	7	12
Sioux Falls.....	2	2	0	5	0	0	0	0	0	0	13
Nebraska:											
Omaha.....	4	7	2	5	0	3	0	0	0	4	60
Kansas:											
Topoka.....	2	3	1	5	0	1	0	0	0	15	17
Wichita.....	5	28	2	0	0	2	0	0	0	1	32
SOUTH ATLANTIC											
Delaware:											
Wilmington.....	6	8	0	0	0	0	0	0	0	4	35
Maryland:											
Baltimore.....	34	48	0	0	0	16	1	3	0	20	275
Cumberland.....	0	2	0	0	0	0	0	0	0	0	14
Frederick.....	1	0	0	0	0	0	0	0	0	0	5
District of Col.:											
Washington.....	28	11	1	0	0	12	0	0	0	7	151
Virginia:											
Lynchburg.....	0	1	0	1	0	0	0	0	0	6	12
Norfolk.....	2	1	0	0	0	3	0	0	0	4	56
Richmond.....	3	12	0	0	0	6	0	1	0	1	31
Roanoke.....	1	0	0	0	0	2	0	0	0	0	17
West Virginia:											
Charleston.....	1	0	0	0	0	0	0	13	0	11	11
Wheeling.....	2	1	0	0	0	2	1	0	0	1	11
North Carolina:											
Raleigh.....	1	0	0	0	0	0	0	0	0	1	12
Wilmington.....	0	0	1	0	0	1	0	0	0	10	13
Winston-Salem.....	1		1				0				

City reports for week ended March 8, 1930—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuber- culosis, deaths re- ported	Typhoid fever			Whoop- ing cough, cases re- ported	Deaths, all causes
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
SOUTH ATLANTIC— continued											
South Carolina:											
Charleston.....	1	2	1	0	0	2	0	1	0	5	32
Columbia.....	0	0	0	0	0	2	0	0	0	17	18
Georgia:											
Atlanta.....	5	15	4	0	0	2	1	0	0	6	95
Brunswick.....	0	0	0	0	0	1	0	0	0	0	5
Savannah.....	1	3	1	0	0	2	0	0	0	0	34
Florida:											
Miami.....	1	2	1	0	0	1	0	0	0	0	40
St. Petersburg.....	0	0	0	0	0	0	0	0	0	25	25
Tampa.....	0	0	0	0	0	2	1	2	0	3	53
EAST SOUTH CENTRAL											
Kentucky:											
Covington.....	2	1	0	0	0	0	0	0	0	0	19
Tennessee:											
Memphis.....	7	18	2	0	0	0	0	1	0	10	106
Nashville.....	4	3	1	3	0	8	0	0	0	4	51
Alabama:											
Birmingham.....	3	4	5	0	0	3	0	1	0	2	67
Mobile.....	0	1	0	0	0	0	0	0	0	0	21
Montgomery.....	1	2	1	0	0	0	0	0	0	0	0
WEST SOUTH CENTRAL											
Arkansas:											
Fort Smith.....	1	1	0	0	0	0	0	0	0	1	0
Little Rock.....	2	1	0	2	0	1	0	0	0	0	0
Louisiana:											
New Orleans.....	7	13	0	0	0	18	2	6	1	2	182
Shreveport.....	1	4	1	0	0	0	0	1	0	7	33
Texas:											
Dallas.....	5	9	5	0	0	3	0	0	0	0	62
Fort Worth.....	1	2	1	3	0	1	0	0	0	0	35
Galveston.....	0	0	0	0	0	1	0	0	1	0	10
Houston.....	1	9	2	7	0	4	0	2	0	0	70
San Antonio.....	1	3	0	9	0	18	0	0	0	0	91
MOUNTAIN											
Montana:											
Billings.....	1	0	0	0	0	0	0	0	0	0	5
Great Falls.....	2	18	1	0	0	0	0	0	0	0	8
Helena.....	0	0	0	0	0	0	0	0	0	1	3
Missoula.....	1	3	0	0	0	0	0	0	0	0	1
Idaho:											
Boise.....	0	0	1	0	0	0	0	0	0	0	7
Colorado:											
Denver.....	15	9	0	0	0	5	0	0	0	18	96
Pueblo.....	1	0	0	0	0	1	1	0	0	0	10
New Mexico:											
Albuquerque.....	0	2	0	0	0	6	0	0	0	0	13
Arizona:											
Phoenix.....	0	0	0	20	0	0	0	0	0	0	15
Utah:											
Salt Lake City.....	4	3	1	0	0	0	0	0	0	22	32
Nevada:											
Reno.....	0	1	0	1	0	1	0	0	0	0	4
PACIFIC											
Washington:											
Seattle.....	10	20	3	6	0	0	1	0	0	10	0
Spokane.....	7	0	9	27	0	0	0	0	0	5	0
Tacoma.....	3	3	3	8	0	0	1	0	0	1	30
Oregon:											
Portland.....	7	0	14	9	0	2	1	1	0	12	68
Salem.....	1	0	0	0	0	0	0	0	0	9	0
California:											
Los Angeles.....	38	55	2	3	0	35	1	1	1	17	271
Sacramento.....	3	7	1	7	0	5	1	1	0	1	31
San Francisco.....	25	34	1	1	0	8	0	1	0	2	174

City reports for week ended March 8, 1930—Continued

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
NEW ENGLAND									
Massachusetts:									
Boston.....	4	1	0	0	0	0	0	0	0
Worcester.....	0	0	1	1	0	0	0	0	0
Connecticut:									
Hartford.....	1	0	0	0	0	0	0	0	0
MIDDLE ATLANTIC									
New York:									
Buffalo.....	2	2	0	0	0	0	0	0	0
New York ¹	20	10	3	1	0	0	1	0	0
New Jersey:									
Newark.....	0	1	0	0	0	0	0	0	0
Pennsylvania:									
Philadelphia.....	1	2	1	2	0	0	0	0	0
Pittsburgh.....	3	2	0	0	0	0	1	0	0
EAST NORTH CENTRAL									
Ohio:									
Cincinnati.....	0	1	0	0	0	0	0	0	0
Cleveland.....	1	1	0	0	0	0	0	0	0
Columbus.....	0	0	0	0	0	0	0	1	0
Toledo.....	1	0	0	0	0	0	0	0	0
Indiana:									
Fort Wayne.....	1	1	0	0	0	0	0	0	0
Indianapolis.....	10	0	0	0	0	0	0	0	0
Illinois:									
Chicago.....	13	6	2	1	0	0	0	1	1
Springfield.....	0	0	0	0	0	0	0	1	1
Michigan:									
Detroit.....	27	8	0	1	0	0	1	0	0
Flint.....	1	0	0	0	0	0	0	0	0
Wisconsin:									
Madison.....	1		0		0		0	0	
Superior.....	0	1	0	0	0	0	0	0	0
WEST NORTH CENTRAL									
Minnesota:									
Minneapolis.....	4	0	0	0	0	0	0	0	0
Iowa:									
Davenport.....	0		0		0		0	1	
Waterloo.....	3	1	0	0	0	0	0	0	0
Missouri:									
Kansas City.....	3	3	0	0	0	0	0	0	0
St. Joseph.....	1	0	0	0	0	0	0	0	0
St. Louis.....	9	4	0	0	0	0	0	0	0
North Dakota:									
Fargo.....	3	1	0	0	0	0	0	0	0
SOUTH ATLANTIC									
Delaware:									
Wilmington.....	1	0	0	0	0	0	0	0	0
Maryland:									
Baltimore.....	1	2	0	0	0	0	0	0	0
Frederick.....	1	1	0	0	0	0	0	0	0
District of Columbia:									
Washington.....	2	0	0	0	0	0	0	0	0
Virginia:									
Richmond.....	0	1	0	0	0	0	0	0	0
North Carolina:									
Raleigh.....	0	0	0	0	1	2	0	0	0
Wilmington.....	0	0	0	0	1	0	0	0	0
South Carolina:									
Charleston.....	0	0	0	0	4	0	0	0	0
Georgia:									
Atlanta.....	0	3	0	0	0	0	0	0	0
Savannah.....	0	0	0	0	1	1	0	0	0
Florida:									
Miami.....	0	0	0	0	1	0	0	0	0
Tampa ¹	0	0	0	0	0	1	0	0	0

¹ Typhus fever: 1 death at New York City, N. Y., and 1 case at Tampa, Fla.

City reports for week ended March 8, 1930—Continued

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
EAST SOUTH CENTRAL									
Tennessee:									
Memphis.....	10	5	0	0	0	0	0	0	0
Nashville.....	0	0	1	0	0	0	0	0	0
Alabama:									
Birmingham.....	0	0	0	0	1	1	0	0	0
WEST SOUTH CENTRAL									
Arkansas:									
Little Rock.....	0	0	0	0	0	1	0	0	0
Louisiana:									
New Orleans.....	3	2	0	0	4	0	0	0	0
Texas:									
Dallas.....	0	0	0	0	0	1	0	1	0
Houston.....	0	0	0	0	0	3	0	0	0
MOUNTAIN									
Colorado:									
Denver.....	0	0	0	1	0	0	0	0	0
PACIFIC									
Washington:									
Seattle.....	1	0	0	0	0	0	0	0	0
Oregon:									
Portland.....	0	1	1	0	0	0	0	0	0
California:									
Los Angeles.....	2	1	0	0	0	0	0	1	1
San Francisco.....	0	0	0	0	0	1	0	0	0

The following table gives the rates per 100,000 population for 98 cities for the 5-week period ended March 8, 1930, compared with those for a like period ended March 9, 1929. The population figures used in computing the rates are approximate estimates, authoritative figures for many of the cities not being available. The 98 cities reporting cases have an estimated aggregate population of more than 32,000,000. The 91 cities reporting deaths have more than 30,500,000 estimated population.

Summary of weekly reports from cities, February 2 to March 8, 1930—Annual rates per 100,000 population, compared with rates for the corresponding period of 1929¹

DIPHTHERIA CASE RATES

	Week ended—									
	Feb. 8, 1930	Feb. 9, 1929	Feb. 15, 1930	Feb. 16, 1929	Feb. 22, 1930	Feb. 23, 1929	Mar. 1, 1930	Mar. 2, 1929	Mar. 8, 1930	Mar. 9, 1929
98 cities.....	94	117	97	121	93	118	107	121	90	133
New England.....	109	117	95	130	100	117	111	123	84	108
Middle Atlantic.....	97	141	83	147	87	139	109	140	89	185
East North Central.....	103	113	115	115	102	106	125	131	95	130
West North Central.....	82	146	104	159	93	131	118	135	116	144
South Atlantic.....	70	67	93	73	110	67	88	64	74	67
East South Central.....	81	82	74	82	108	68	61	55	40	68
West South Central.....	108	114	146	114	86	175	108	145	153	114
Mountain.....	69	78	60	44	69	44	0	61	86	61
Pacific.....	43	68	87	77	61	106	73	72	45	36

¹ The figures given in this table are rates per 100,000 population, annual basis, and not the number of cases reported. Populations used are estimated as of July 1, 1930 and 1929, respectively.

² South Bend, Ind., and Denver, Colo., not included.

³ Winston-Salem, N. C., not included.

⁴ South Bend, Ind., not included.

⁵ Denver, Colo., not included.

Summary of weekly reports from cities, February 2 to March 8, 1930—Annual rates per 100,000 population, compared with rates for the corresponding period of 1929—Continued

MEASLES CASE RATES

	Week ended—									
	Feb. 8, 1930	Feb. 9, 1929	Feb. 15, 1930	Feb. 16, 1929	Feb. 22, 1930	Feb. 23, 1929	Mar. 1, 1930	Mar. 2, 1929	Mar. 8, 1930	Mar. 9, 1929
98 cities.....	324	252	420	404	456	456	548	578	636	537
New England.....	295	561	432	541	383	382	463	635	543	424
Middle Atlantic.....	186	129	224	114	267	140	364	158	440	162
East North Central.....	172	66	253	761	269	883	351	1,142	447	983
West North Central.....	308	1,193	793	983	750	1,253	920	1,555	918	1,699
South Atlantic.....	245	133	306	135	403	167	136	197	504	234
East South Central.....	81	14	263	41	681	0	850	62	810	62
West South Central.....	695	34	743	50	799	80	755	57	542	103
Mountain.....	395	1,341	738	1,019	747	923	2,004	697	2,051	818
Pacific.....	1,200	135	1,450	164	1,483	145	1,908	229	1,845	142

SCARLET FEVER CASE RATES

	330	246	309	277	301	261	367	298	329	298
98 cities.....	330	246	309	277	301	261	367	298	329	298
New England.....	485	305	350	373	374	292	368	337	394	308
Middle Atlantic.....	274	186	246	222	255	202	325	230	298	228
East North Central.....	432	318	438	340	425	341	513	402	452	411
West North Central.....	362	312	324	360	321	373	334	321	338	356
South Atlantic.....	203	146	231	157	216	144	236	137	194	155
East South Central.....	216	246	169	260	169	185	196	219	196	198
West South Central.....	138	232	116	255	101	270	116	202	149	270
Mountain.....	352	113	412	87	300	113	685	218	292	157
Pacific.....	338	304	314	328	236	292	411	493	281	410

SMALLPOX CASE RATES

	29	5	27	8	24	12	31	16	25	12
98 cities.....	29	5	27	8	24	12	31	16	25	12
New England.....	2	0	7	0	0	0	0	2	2	0
Middle Atlantic.....	0	0	0	0	0	0	0	0	0	0
East North Central.....	34	8	33	15	20	15	40	24	24	18
West North Central.....	59	2	47	0	91	15	89	15	78	6
South Atlantic.....	4	0	5	2	2	4	2	7	2	6
East South Central.....	0	0	27	0	13	0	7	7	20	7
West South Central.....	101	50	105	23	56	95	120	107	67	95
Mountain.....	17	25	34	70	17	35	51	87	9	44
Pacific.....	146	7	104	24	118	19	102	24	123	17

TYPHOID FEVER CASE RATES

	4	5	6	5	5	4	8	4	8	5
98 cities.....	4	5	6	5	5	4	8	4	8	5
New England.....	0	2	2	4	4	9	0	2	2	4
Middle Atlantic.....	3	4	6	4	7	4	4	2	4	4
East North Central.....	5	3	3	2	1	2	1	0	3	3
West North Central.....	2	2	9	12	2	6	6	8	8	4
South Atlantic.....	11	6	7	6	13	4	55	2	38	6
East South Central.....	20	7	20	14	7	7	34	14	13	7
West South Central.....	7	27	7	11	4	8	0	19	34	19
Mountain.....	9	9	0	0	9	0	0	9	0	0
Pacific.....	2	7	5	7	12	5	7	7	7	17

² South Bend, Ind., and Denver, Colo., not included.

³ Winston-Salem, N. C., not included.

⁴ South Bend, Ind., not included.

⁵ Denver, Colo., not included.

Summary of weekly reports from cities, February 2 to March 8, 1930—Annual rates per 100,000 population, compared with rates for the corresponding period of 1929—Continued

INFLUENZA DEATH RATES

	Week ended—									
	Feb. 8, 1930	Feb. 9, 1929	Feb. 15, 1930	Feb. 16, 1929	Feb. 22, 1930	Feb. 23, 1929	Mar. 1, 1930	Mar. 2, 1929	Mar. 8, 1930	Mar. 9, 1929
91 cities.....	14	58	20	54	20	45	² 20	39	² 17	34
New England.....	4	90	4	56	16	40	11	20	18	16
Middle Atlantic.....	11	58	15	44	16	35	17	30	13	25
East North Central.....	13	28	18	36	16	33	⁴ 16	31	13	31
West North Central.....	21	51	12	33	12	45	15	39	3	21
South Atlantic.....	11	92	29	60	20	69	26	67	² 32	47
East South Central.....	37	127	66	224	81	82	59	149	66	75
West South Central.....	54	102	73	152	73	133	69	86	34	117
Mountain.....	43	78	34	87	26	78	² 34	52	34	61
Pacific.....	9	41	21	41	3	38	12	31	3	22

PNEUMONIA DEATH RATES

91 cities.....	179	230	176	222	182	193	² 198	222	² 170	203
New England.....	146	384	177	303	221	233	213	272	202	218
Middle Atlantic.....	190	208	202	254	200	192	230	240	191	223
East North Central.....	139	133	129	183	153	170	⁴ 180	180	142	160
West North Central.....	157	186	109	180	151	207	136	228	127	195
South Atlantic.....	198	240	196	243	203	238	216	255	² 200	234
East South Central.....	236	194	250	164	272	157	199	284	243	239
West South Central.....	291	191	276	211	188	250	199	207	172	226
Mountain.....	369	235	335	244	240	226	² 223	279	146	183
Pacific.....	160	129	132	123	83	129	77	148	92	138

¹ South Bend, Ind., and Denver, Colo., not included.

² Winston-Salem, N. C., not included.

³ South Bend, Ind., not included.

⁴ Denver, Colo., not included.

FOREIGN AND INSULAR

CANADA

Quebec Province—Communicable diseases—Week ended March 8, 1930.—The Bureau of Health of the Province of Quebec, Canada, reports cases of certain communicable diseases for the week ended March 8, 1930, as follows:

Disease	Cases	Disease	Cases
Cerebrospinal meningitis.....	3	Mumps.....	141
Chicken pox.....	79	Puerperal septicemia.....	2
Diphtheria.....	53	Scarlet fever.....	111
Erysipelas.....	9	Tuberculosis, pulmonary.....	65
German measles.....	14	Typhoid fever.....	20
Influenza.....	19	Whooping cough.....	87
Measles.....	91		

CHINA

Meningitis.—During the week ended March 8, 1930, 2 cases of meningitis with 1 death were reported at Hong Kong, China. Seven cases with 4 deaths were reported in Canton during the same week.

CUBA

Provinces—Communicable diseases—Four weeks ended February 15, 1930.—During the four weeks ended February 15, 1930, cases of certain communicable diseases were reported in the provinces of Cuba, as follows:

Disease	Pinar del Rio	Habana	Matanzas	Santa Clara	Camaguey	Oriente	Total
Cancer.....		10			1	1	12
Chicken pox.....		32		1		8	41
Diphtheria.....	1	13	4	9	3	4	34
Malaria.....		13			9	48	70
Measles.....	1	1		21	4		27
Paratyphoid fever.....		2		1	1	2	6
Scarlet fever.....	1	19	3	1			24
Tetanus (infantile).....					1		1
Typhoid fever.....	8	18		16	4	11	57

Habana—Communicable diseases—February, 1930.—During the month of February, 1930, certain communicable diseases were reported in the city of Habana, Cuba, as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Chicken pox.....	33	-----	Scarlet fever.....	24	-----
Diphtheria.....	20	1	Tuberculosis.....	66	38
Leprosy.....	2	-----	Typhoid fever.....	16	3
Malaria.....	10	-----			

¹ Many of these cases from the interior of the island.

MENINGITIS ON VESSEL

Steamship "President Hayes."—The Steamship *President Hayes*, which left Manila February 15, 1930, arrived at Honolulu, Hawaii, March 1, with two cases of meningitis, which later proved fatal, on board. One death from meningitis had occurred at sea. One hundred and eighty contacts were quarantined in Honolulu. Within a few days eight new cases developed.

SPAIN

Vital statistics—November, 1929.—The following table shows the number of births and deaths, with deaths from certain causes, which occurred in Spain during the month of November, 1929:

<i>November, 1929</i>			
Births.....	49,510	Influenza.....	177
Stillbirths.....	1,382	Measles.....	315
Deaths.....	30,402	Puerperal septicemia.....	114
Deaths under 1 year.....	4,551	Scarlet fever.....	16
Deaths from—		Tuberculosis (pulmonary).....	1,894
Cancer and other malignant tumors.....	1,382	Typhoid fever.....	404
Diphtheria and croup.....	165	Whooping cough.....	61

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

From medical officers of the Public Health Service, American consuls, Pan American Sanitary Bureau, health section of the League of Nations, and other sources. The reports contained in the following tables must not be considered as complete or final as regards either the list of countries included or the figures for the particular countries for which reports are given.

CHOLERA

[C indicates cases; D, deaths; P, present]

Place	Week ended—										
	July		Aug.		Sept.		Oct.		Nov.		Mar. 1, 1930
	23- Aug. 1929	30- Sept. 1929	27- Aug. 1929	24- Sept. 1929	21- Oct. 1929	18- Oct. 1929	15- Nov. 1929	12- Nov. 1929	9- Dec. 1929		
China:											
Amoy	1	1	1	1	4						
Canton	5	1	1	1							
Hankow	3	1	1	1							
Manchuria—											
Kwantung—Dairen	1	1	1	1							
Newchwang											
Nanking	1,365	984	35	35							
Shanghai	98	69	11	11							
Swatow	12	37	22	22							
Tientsin	6	P	P	P							
Chosen: Chemulpo.	41,060	26,896	10,354	10,354							
India:											
Basseln	24,005	16,667	10,660	10,660							
Bombay	6	2	1	1							
Calcutta	1	135	160	262							
Kanachi	170	59	70	129							
Madras	105	10	11	114							
Nagapatam	1	1	1	1							
Rangoon	1	1	1	1							
Tuticorin	1	1	1	1							

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

CHOLERA—Continued

[C indicates cases; D, deaths; P, present]

Place	Week ended—									
	December, 1929		January, 1930				February, 1930			Mar. 1, 1930
	21	28	4	11	18	25	1	8	15	22
India (French):										
Chandernagor.....	1	1	1							
Karikal.....	1	1	1							
Pondicherry Province.....										
India (Portuguese):										
Indo-China (see also table below):										
Prompenh.....	3	61	43	1	2	3	3	3	1	3
Seigon and Cholon.....	3	53	37	1	2	2	2	2	2	2
Japan.....	2	34								
Kobe.....	5	9	3							
Osaka.....	5	41	14							
Shimonoseki.....	P	2								
Siam.....	180	26	9	3	2					
Anthoang.....	10	19	4	1						
Ayudhya.....	3	2								
Bangkok.....	9	10	4	1	2	3	1	1	1	1
Dhannapuri.....	3	5	2							
Lobpur.....	2	3	2							
Nagara Rajshma.....	2	3	2							
Sridharmara Province.....	5	2	2							
	15	5	5							
	13	2	2							

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

PLAGUE—Continued

[C indicates cases; D, deaths; P, present]

Place	Week ended—																								
	Aug. 25- Sept. 21, 1929		Sept. 22- Oct. 19, 1929		Oct. 20- Nov. 16, 1929		Nov. 17- Dec. 14, 1929		December, 1929				January, 1930				February, 1930				March, 1930				
	25- 21, 1929	21- 19, 1929	22- 19, 1929	19- 14, 1929	20- 16, 1929	16- 14, 1929	17- 14, 1929	14- 14, 1929	21	28	4	11	18	25	1	8	15	22	1	8	15	22	1	8	15
Brazil:																									
Rio de Janeiro.....																									
Sao Paulo.....																									
British East Africa (see also table below): Uganda.....	528	405	336	281	42	33	33	33	33	33	33	33	35												
Ceylon:																									
Colombo.....	1	3	3	5	1	1	1	1	1	1	1	1	3												
Plague-infected rats.....	1	1	1	4	1	1	1	1	1	1	1	1	3												
Galle.....	8	1		1																					
Kandy.....	6																								
Chile: Antofagasta.....	1																								
China:																									
Foochow.....	P	P																							
Hong Kong.....	1	1	1																						
Plague-infected rats.....	2																								
Dutch East Indies:																									
Batavia and West Java.....	180	131	295	340	65	83	66	72	35																
Celebes—Makassar.....	178	128	252	335	61	82	64	73	35																
Plague-infected rats.....			1	8																					
Celebes—Makassar.....				1																					
Plague-infected rodents.....				1																					
East Java and Madura.....	7	60	41	29	1	1																			
Java and Madura.....	7	60	43	29	1	1																			
Surabaya.....	246	275	475	537	131	117	106	104	71	92															
Equador (see table below).	7	2		4																					

Place	Aug- ust, 1929	Sep- tem- ber, 1929	Octo- ber, 1929	No- vem- ber, 1929	De- cem- ber, 1929	Janu- ary, 1930
British East Africa (see also table above):						
Kenya.....	19	28	146	157	54	34
Uganda.....	866	511	384	179	216	87
.....	740	451	351	164	199	75
Ecuador: Guayaquil.....	6	7	12	14	17	8
.....	1	3	4	3	6	4
Plague-infected rats.....	4	8	4	9	13	4
Greece (see also table above).....	2	5	5	2	1	
.....	1	2	2	1		
.....	1	0			10	4
Indo-China (see also table above).....	48	195	203	182		
Madagascar (see also table above).....	46	182	193	163		
Ambohitra Province.....	9	9	2	42		
Antsirabe Province.....	9	9	2	33		
.....	1	13	17	5		
Iuasy Province.....	1	13	17	5		
.....		5	5	10		
Malunga Province.....	2			10		
.....	2					
Maurinavo.....	2	11	12	5		
.....		11	11	5		
Madagascar—Continued.						
Moramanga Province.....	C	C	C	C	C	C
Tamatave Province.....	D	D	D	D	D	D
Tananarive Province.....	D	D	D	D	D	D
Peru.....	D	D	D	D	D	D
Senegal:						
Baol.....	32	42	45	23	5	5
Dakar.....	13	24	13	16	2	2
Louga.....	76	26	8	17	8	8
Rufisque.....	65	17	2	6	1	1
Thies.....	121	108	41			
Tivaouane.....	70	64	24	1		
.....		1				
.....	53	34	3	3		3
.....	33	28	3	3		1
.....	188	119	41	8		1
.....	119	53	21	4		

¹ Incomplete reports.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX—Continued

(C indicates cases; D, deaths; P, present)

Place	Week ended—																				
	August,		Sept.		Oct.		Nov.		January, 1930				February, 1930				March, 1930				
	25 Sept. 1929	28 Sept. 1929	25 Oct. 1929	28 Oct. 1929	22 Nov. 1929	25 Nov. 1929	22 Dec. 1929	25 Dec. 1929	21	28	4	11	18	25	1	8	15	22	1	8	15
Siam.....	23	33	7	3					6		27	9									
Somaland, British; Boales.....	5	2	2	1					2		2	2									
Somaland, French; Jibuti.....	4	3	25	24					1		1	1									
Straits Settlements.....	2	4	16	9					3		1	1									
Sudan (Anglo-Egyptian).....	10																				
Sudan (French) (see table below).	11																				
Syria (see table below).																					
Tunisia: Tunis.....	108	250	91	254					2		3	205	14	21	171	24	19	1	59	8	
Turkey (see table below).	95	16	12	45					4			42	1	8	30	5	2		4		
Union of South Africa:																					
Cape Province.....		6	23	47							3	3	1	4	1						
Natal.....																					
Transvaal.....	P	P	P	P					P		P	P	P	P	P						
Upper Volta.....	P	P	P	P					P												
On vessel:		1															17				
S. S. Karagola at Zanzibar from India.....																	4				
S. S. Karca, at Zanzibar.....																					
S. S. Teipikn, at Manila, from Australia.....	1		1																		
S. S. Talron, at Liverpool from London.....																					
S. S. Umvuma, at Cape Town, from London.....		5																	1		

CHOLERA, PLAGUE, TYPHUS FEVER, AND YELLOW FEVER—Continued

TYPHUS FEVER

[C indicates cases; D, deaths; P, present]

[illegible]

